The Iron A

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Elisha P. Wheeler.

On the evening of March 31st, Mr. Elisha P. Wheeler died at his residence in Middletown, N. Y. He was nearly seventy years of age, was years occupied a prominent position as a manufacturer. His portrait, which we present herewith, will be recognized as a faithful likeness by those who have enjoyed the pleasure of a personal acquaintance with him.

Elisha Pearl Wheeler was born February 5th, 1807, at Hampton, Windham county, Conn. At the age of 12 he removed with his parents to Red Hook, N. Y. He received his education at that chapter of accidents which attended the close to the blast furnace and let the molten wrote well, and had a talent, amounting almost to genius, for accounts.

His first venture in business was at Sauger-Rhinebeck and engaged in the stove and the business with Mr. Charles Sanford. There he remained until 1830, when he removed to Montgomery, Orange county, where he continued in the stove and tin business in partnership with Mr. Sanford. The firm was dissolved by the death of Mr. Sanford, in 1832.

Mr. Wheeler then formed a partnership with Jonah F. France, for the prosecution of the same business. In 1839, Joseph Lemon and Abner Madden, of Newburgh, were added to the firm, and a foundry was built at Montgomery. This firm, under the style of Wheeler, France & Co., continued in the business of making stoves and general castings until 1842, when the business was sold. In 1843, Mr. Wheeler came to Middletown and engaged in business with Jonah F. France, Edward M. Madden and Joseph Lemon. Here they built the foundry known as the Orange County Furnace. The new firm started in the spring of 1843, under the firm name of Wheeler, France & Co., in the tin business, with a store on North street. The foundry business gave Mr. Wheeler his first favored start in Middletown. He was connected with it as a part owner till 1854, when he sold out, and it was in other hands until 1863, when he became, and has since been, its sole owner.

Since 1853 he has been connected with many of the principal manufacturing enterprises which have given Middletown its chief growth and prominence. In the year mentioned the "Monbagen Saw Works" were started, of which he was one of the three original owners. The firm was first Wheeler, Madden & Bakewell, and afterward, in 1800, Wheeler, Madden & Clemson. The factory was one of the first in the country, and it is now one of the largest. Its business increased so that in 1862 the firm started the Monhagen Steel Works and Rolling Mills, under the firm name of E. M. Madden & Co., for the manufacture of their own steel. In 1863 the firm became largely interested in the Eagle File Works. The firm name was Wheeler, Clemson & Co. In 1866-7, Wheeler, Madden & Clemson, with others, started the Middletown Forged Horse Nail Works. A few years ago the firm became a stock company, under the corporate title of the Wheeler, Madden & Clemson Manufacturing Company, and Mr. Wheeler was its president.

In the business undertakings which he con-trolled, Mr. Wheeler was always successful, but within-a few years before his death he lost by unfortunate investments in other things the large property he had accumulated by the labor of the best years of his life. By the Midland Railway he lost heavily, and the same unfortunate results followed his liberal investments in the Nes Silicon Steel Co. Mr. Wheeler surrendered his wealth to his creditors, and, though poor, retained an untarnished reputation as a man of honor and a public spirited citizen. Personally, Mr. Wheeler was a most estimable gentleman, and was greatly beloved by the community in which he lived. His death was a surprise to his immediate family and doubly so to the public. For many years he had filled a number of important public and private trusts, and the place in the community left vacant by his death cannot well

The Complete Bessemer Process.

The history of the origin and development of Bessemer's famous invention is, perhaps, one of the most instructive in that curious and generally gloomly record which tells how great ideas have been worked out for the benefit of the world by the devotion of men who have rarely reaped the fruit of their labors. The founder of the largest modern steel industry had a peculiar experience, in that, unlike most inventors, he has not only 'The production of malleable iron and steel without fuel," before the incredulous savants a series of addreses-for it was hardly a discusston—which establish the superiority of a mode ing facilities for mixing different brands of pig tion of the intermediate melting by which the as well. At first sight it appears that, if direct is \$2 per day.

of working which was claimed at Cheltenham, so as to obtain a pretty constant mean product. silicon is in part eliminated. But this is only tapping is economical in the Bessemer process, but afterward abandoned in England till reintroduced from the Continent.

ties, N. Y., where he found employment for a to a melting furnace to bring the pig into a ous incrustation of sand, and then laboriously favorable case. few years in the rolling mill and furnace lo- molten condition. Whether he would have per- removing the cooled pig to be melted again at

tune to be in advance of his age. We should starts with melted pig iron; and melted pig tion of the cupola furnace between the blast from the biast furnace. The obvious course on the decarburation of cast iron by the injec- charged into the converter. Common sense retion of air he did not have access to a blast volts against the idea of first running the pig

Yet, if we consider the matter in the light of when dealing with very silicious pig, and, by a it must be equally so in the Siemens-Martin our present knowledge, it certainly seems careful regulation of charges in the blast fur-It has been well said that valuable inventions strange—not to say discreditable—that English nace, there is no reason why the percentage of expected fact—vouched for by Mr. Hackney often fall to the ground simply because the metallurgists should have been nearly a gener-silicon should not be kept within such bounds that the decarburization of a charge of previwidely known and respected, and has for many technical knowledge of the day is not up to years occupied a prominent position as a manuther level. They are born prematurely into a was in successful use at Neuberg in Styria in lng process quite unnecessary. In fact, the reworld which has not the capacity necessary to 1865, and in France and Sweden several years verse necessity sometimes arises. In the south state. profit by them, and remain dormant till rediscovered by some one who has not the ill-for-advantages are patent. The Bessemer process card the remelting system by the fact that their alightly silicious metal lost so much silicon in available a mode of producing steel-the most otherwise be inclined to say that the interposi- iron is precisely the substance which is tapped the cupola as to render it unit for the con- valuable of the metals—on such a scale as to verter. Mr. Snelus, of the West Cumberland furnace and the converter was simply one of would seem to be, either to place the converter Iron Works, finds that, while with the pig and the potent instruments of civilization. But it cupola process it takes only 231/2 cwt. of metal is only fair we should acknowledge that it is in the Hampton District School and the Red Hook
Academy. He was generally well informed,

Academy the baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in direct; or, if this were inconvent to produce a ton of steel ingots, it requires of the Baster house heresy. It spental run in dire half hundred weight deficiency is ascribed to the the actual process may be greatly simplified. presence of too much silicon; but we can hardfurnace, so he was compelled to have recourse into sand molds to cool, and take up an injuri. ly accept this as other than an exceptionally un-

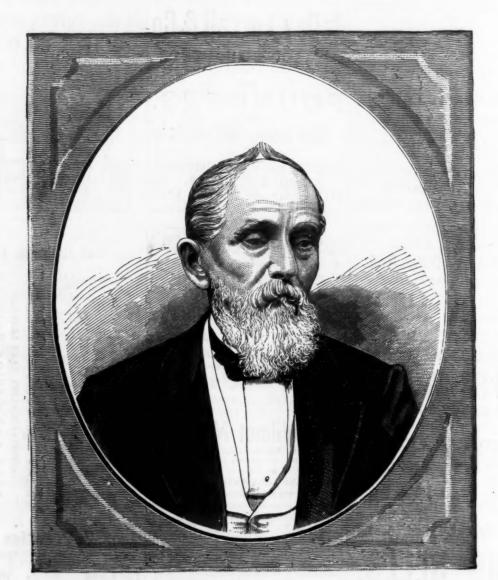
As all metallurgical improvements ultimately cated there. At the age of 23 he removed to severed in his labors if it had not fortunately the cost of expensive fuel. Yet this is what resolve themselves into questions of comparamit they are indebted to British enterprise and

The world is indebted to England for Besse mer and Mushet, who invented and rendered enable it to take the place it deserves among We have yet fully to recognize that America conduct of the process and the construction of plant, for which they are ready enough to adingenuity. But, while our iron masters ontinue to show themselves as ready both to learn and to teach as we have seen them during the past week, we need not fear for our iron manufacturers.-Iron.

The Dutchess County (N. Y.) Ores.

The Amenia (N. Y.) Times says: Dutchess county is rich in hematite iron ore. Some of the mines can rightly be called "centenarians," as they were worked to some extent to furnish iron in times of the Revolution. These ores have long been noted for making the very best iron for car wheels, gun castings and all materials where toughness and durability are desired; and, according to an analysis made in England from ore sent over by the Manhattan Mining Co., it is pronounced excellent for Bessemer purposes, and, in fact, this has been proven, as some of our ores in this section have been used for that purpose. Since 1860 the mining interest of this county has been greatly developed, and before the "panie" of two years ago was a source of considerable wealth to us. At that time the wise ones closed their mines rather than to sell ore at the low price offered. Some of them, however, accepted new contracts, in order to keep business moving until better times should come; but experience during the last two years having proven that the prices paid for iron ores were actually far less than cost of labor to raise the ore, remove the dirt and other unavoidable expenses for washing, repairs to machinery, cost of tools, cartage, royalty, &c., &c., the miners have actually given away their valuable ores, and in addition paid a bonus to parties to take them. We now hear, with regret, that the few miners in the Harlem section that have kept at work, intend to close, and thus reserve their ores for "better days," unless a very considerable advance in price can be obtained. The Harlem ores have been sold for below any others in the whole country, considering their intrinsic merits and value. We understand our miners are willing to do business on small margins, and only ask a price that will compare fevorably with the price of ores in other sections of the country, and to keep bankruptcy from staring them in the face. The ore producers in this section are not the only ones that have come to the same conclusion by sad experience, for we see by exchanges that the large Hibernia Mines in New Jersey have closed, and the miners in the Lake Superior region propose to do the same unless a fair living price for their ores can be obtained.

Snow Plowing in the Sierras .- The Virginia (Nev.) Enterprise says: The men who run the snow plow trains in the Sierras deserve kind thoughts from all travelers. It is a touching stations. Behind the plow are ten or a dozen under the first engine, of course the others would be piled in an indistinguishable heap in a moment, and yet through days and nights these men keep their places. Last week, without a noment's rest or relaxation, one of these trains fought for twenty-eight hours against a bank was broken. One white man and two Chinamen were crushed to death, but, as in battle, was cleared. To ride through the snow at Emigrant Gap and Blue Canyon is like floating the ideal of blast furnace managers, quality twenty feet high. This shows how patiently and persistently the work has gone on. Against sions will probably be to render the alliance steam and fron these men have toiled, flanked ters. Men on battle fields fight for glory and naces on the same ground as their converters, for great rewards. That no selfish motive may certainly to the extent of some shillings a ton. be ascribed to the snow plow men to tarnish the expensive, solution of the difficulty by afford- we have the sole valid argument for the reten- pig makers will gradually become steel makers we will state that we understand their reward



ELISHA P. WHEELER.

something very like it-was tried. But the pig port of those who then depreciated it, but conwas bad, and the product worthless. The president of the Institute created much amusetion, that the inculpated pig was not of good enough "for American railway iron." At all events, after this, in the subsequent developments of the pneumatic process, the cupola was fallen back on, without any very vigorous attempt to make the direct process of

It must, however, be recollected that twenty years ago empiricism reigned supreme in the blast furnace practice of nine iron works out of ten, and even those which were cautiously calling in the aid of chemical science, had neither the command of ores nor the technical ex- If, on the other hand, there be too much silicon perience which nowadays render it comparatively easy to produce with regularity any paressential for the successful working of the Bessemer process; and the roundabout pig-

in which it is still contended that the use of maintains the contents of the converter in ting by their oxidation to the total calorific effect. The calorific power of silicon being very high, it depends on the amount of silicon present in the pig, whether the converter charge blows hot-forming a perfectly liquid or not. If there be too little silicon present the blow will be prolonged, and there will be a constant formation of skulls! or solidified metal attaching to the sides of the vessel. present, there will be an excessive loss of iron, as siag; and there is a difficulty in completely 21/2 per cent. of silicon is an essential constituent of good Bessemer pig, but that a much

on was good Blenavon pig, and therefore | quite lately; and, so recently as the Barrow | be the pecuniary value of the proposed modifiamendable to atmospheric treatment, seems meeting of the Institute, there were found able cation of our Bessemer practice. The only open to question. But the experiments were and experienced steel masters who vehemently estimate given on this point was that of successful, and the cupola was associated with ridiculed the idea of its being possible to do Mr. Snelus, who reckoned the saving at sight to see them, at a signal, take their Then came the trying period. At otherwise. We will not recall all the arguments from 4/to 5/a ton. Considering that this is at Dowlais, Mr. Menelaus placed a blest furnace at that were then used against an innovation works which were not originally planned for heavy freight locomotives. Should a rail break the inventor's disposal, and direct tapping or which has now the intelligent and candid sup-direct working, it may be taken as a safe minimum. Mr. Smith, of Barrow, was less confident tent ourselves with considering the one point as to the saving effected at these monster works, but as, owing to local peculiarities, the ment by explaining, with mock indigna- remelted pig is advantageous. The heat which molten metal has here to be carried nearly two miles to the converters, it is rather to be wonnormal Dowlais quality, but only tolerated as a state of perfect fluidity is due to the ox dered at that any success has been attained at of snow, only two miles in length, before it idation of carbon and silicon; some of the all. Indeed, the facility with which it is found iron and any manganese present also contribu- that fluid cast iron can be bandled and retained in a liquid condition for long periods of the fallen were carried to the rear, and the fight time opens quite a new field for technical appli- against the storm never relaxed, until the way cation. But what is of greatest importance is the general testimony borne to the superior quality of direct-tapped steel. As quantity is at the bottom of a canal the banks of which are must always be the first consideration of steelmakers. The immediate effect of these discus- the storm, the cold, the avalanche, the fire and between iron smelting and steel making even and conquering winter in his stronghold, more closer than it has hitherto been. Those though backed by every one of his prime minissteel makers who depend on supplies of purearned but obtained his reward; and now, just ticular quality of pig for which there is a suffi-twenty years after the reading of his paper on cient demand. A uniform quality of pig is is removed. It would appear that from 11/4 to compared with their rivals who have blast furof the British Association, he is taking part in and-cupola system offered a rough, though larger proportion than this is injurious. Here The result will probably be that all Bessemer glory due their herote and self-sacrificing acts,

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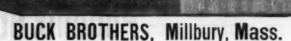
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Modern Engineering.

Modern engineering may be said to date from the tenth century, at which time a great building era commenced in Southern Europe and continued for about 300 years, during which time the great ecclesiastical structures which characterized that period were erected or commenced. While this work, remarkable chiefly for artistic excellence and originality and boldness of design, was in progress, many other more strictly engineering works and works of utility were also undertaken, in the way of canals, and for the improvement of harbors and rivers. Canal locks, for transferring vessels from one level to another were first introduced in 1481. Their originator, Leonardo da Vinci. if he had left no more skillful or attractive vork, would for this alone be entitled to the homage of the civilized world. But the great hydraulic works of Holland, constructed for driving back the sea and reclaiming vast tracts of valuable land, commenced as early as the twelfth century, formed, with their accompanying machines for lifting water for drainage, the most formidable engineering works extant up to the time of the invention of the steam en-The designers of those works thus be ame the leading engineers of the world, for the time being. The English were for many We years-quite up to the time of Cromwell-deing skill employed in their hydraulic opera-

The introduction of the steam engine in the ast century, and the consequent rapid extension of manufacturing industry, opened also new and enlarged fields for the engineer. Previous to this time the ablest mathematicians, philosophers and men of science generally were called upon to advise and superintend great works of engineering. Archimedes was employed to devise works to defend his native city from its besiegers, and nobly fell while thus engaged. Some of the greatest philosophers during the era of the revival of letters, were called upon to take charge of great national works of improvement; among them may be honorably mentioned Torricelli, a pupil of Galileo. But, with the new impulse given to industry by the introduction of steam as an aid to mechanical labor, engineering took such wide range and called for so much and such varied talent, study and experience, as to necesarily make it a school of itself.

It was at this time, too, that the profession took its modern title, engineer. The name was first applied, we believe, by the Frenchngenieur-and was originally confined exclusively to one who had charge of a steam engine; but soon afterward received a more general acceptation, and from the Latin ingenium, a contriver, was applied to all who devised mechanical means to any desired end.

It is the province of the engineer to substitute for the slow and laborious toil of the hands and fingers some ingenious mechancial ontrivance by which the same work can be nodern engineer is a great economizer, and a great civilizer as well. One pair of hands, of hundreds of thousands of maided hands. Nearly all the artificial comforts of modern life great responsibility. On the accuracy of his calculations in regard to the strength, position and fitting of materials depends the lives of the throngs who go out upon the deep in ships, and all who trust themselves to the swinging bridge or the rushing car.

Again, it is the duty and privilege of the engineer to find employment for idle money, to devise ways for developing the resources of a state or nation, and means for the protection of mies. In carrying out 'his work he has revolutionized the art of war, both on sea and land, in the construction of iron-clad ships, iron roads and superior ordnance.

The engineer is called upon now to protect us great distances and through seemingly imposdevise ways and means by which we may penetrate, for thousands of feet, into the deep, dark dustrial progress; to look after the national weal and health and life, and to devise ways and means to improve the mutual economy of the world at large. Such are the varied responsibilities which have devolved upon this profession by the new conditions of society and ndustry which have grown out of the invention of the steam engine.

nations; while the smoke of our steamships darkens all the great ocean highways

In England the Eddystone lighthouse, the Menia Straits bridge, the Plymouth breakwater, the Liverpool docks, the Albert viaduct across the Tamor shove Plymouth and the Thames tunnel in London are all marvels of modern engineering. It was at the construction of the Albert viaduct that the distinguished engineer Brunel, first introduced the principle of excavating foundations for bridge piers by the use of an iron cylinder, within which the men worked under an atmospheric pressure varied according to the depth, sufficient to keep out the water by that pressure. The placing of the two main spans of this viaduct was also one of the greatest engineering feats ever accomlished. The central pier upon which they rested was 190 feet in hight from the bottom of the foundation, viz: 20 feet from hard gravel to top of the mud in the bottom of the river; 70 feet of water above and 100 feet from water surface to the bridge to allow of the free passage underneath of the largest ships which were accustomed to pass up that estuary. To place these huge spans (which consisted of tubes of boiler plate, arched in form, each 470 feet long, 17 in width and 12 in hight, weighng 1200 tons), they were floated out on iron pontoons, raised by hydraulic rams three feet every other day, as the main work of the pier rogressed above the water until it reached its opmost course.

The engineering works in the United States are chiefly exhibited in our long and difficult ines of railroads, in our canals, fortifications, breakwaters and bridges. In the first and last we are in no sense inferior to any other country on the globe. The St. Louis Bridge, lately completed, is a marvel of engineering; while the bridge now in course of construction be tween New York City and Brooklyn, is, perhans, the grandest piece of engineering work ver devised.

With regard to the future of engineering who will dare to predict? A distinguished Englishman recently said: "Engineering depends largely on experience; nevertheless, in future times, whenever difficulties shall arise, or works have to be accomplished for which there is no precedent, he who has to perform the duty may step forth from any of the walks of life, as engineers have not infrequently heretofore done. The marvelous progress of the last two generations should make every one cautious of predicting the future. Of engineering works, however, it may be said that their practicability or impracticability is often determined by other elements than the inherent difficulty in the works themselves. Greater works than anything yet achieved remain to be accomplished-not, perhaps, yet awhile. So-ciety may not yet require them; the world could not at present afford to pay for them."-Scientific Press.

The blowing engine which I. P. Morris & Co. are erecting at the Centennial is, with the done quicker and cheaper than by hand. The exception of a very few of the minor details, now complete. The steam cylinder is 50 inches in diameter by 7 feet stroke, and the air cylin through his ingenuity, is enabled to do the work | der is 90 inches in diameter, with the same stroke. It is of the style generally known as the "steeple," with the air cylinder placed verare due to the skill and inventive genius of the engineer. His position, too, is often one of the cylinders are in one line, and the piston rods are severally connected to a yoke, which encompasses the crosshead, the rod of the air cylinder passing upward, and that of the steam cylinder downward. The whole hight of this machine is 87 feet 6 inches above the floor, and its weight over 100 tons. It is a condensing engine, but will be run (without pressure in the air cylinder) during the exhibition as a high pressure or non-condensing engine, at about 16 revolutions per minute, discharging into the upper regions of the building nearly 10,000 cubic feet of air per minute, which ought to render the immediate vicinity of this engine a favorite locality during the heated term which we are sure of in the months of July and August. Upon either end of the shaft, which is from the inroads of water upon our valleys and | below the bottom cylinder head, is a fly-wheel plains, and again to lead that same element, of 20 tons weight, which is, in some respects, for irrigating purposes, by convenient ways, quite notable. The hubs or centers of the over our farms and vineyards, all through those wheels are somewhat larger than in the ordisame valleys and plains. Again we look to him nary constructions of this kind, sufficiently so to protect our cities from disease and death by as to permit of the grank pin being inserted bringing thither the life giving waters from into them as in the ordinary disk crank. These hubs or centers have boles bored radially in sible ways. Then, again, we need his services to their edges for the reception of the arms of the wheel; and each arm, cast with its own section of the rim, has a corresponding cylindrical prorecesses of the earth, to bring up therefrom the jection upon it, which is turned in the lathe to shining metals which give life and energy to fit the radial holes in the hub. The sections of commerce and industry. In short, it is the en- the rim where they join each other are secured gineer's province to pioneer the way for all in- with the usual internal link and driven keys, riveted over on the outside to prevent withdrawal; and the turned ends of the arms are secured in the bub with similar riveted keys through slots, cast in them and the hub for that purpose. This is something of a noyelty in the construction of large sectional fly-wheels, and has at least the merits of cheapness, precision industry which have grown out of the invention of the steam engine.

The introduction of the steam engine, through the introduction of the steam engine, through the ingenuity and method of the engineer, has given us the steamship and the railroad, which science has supplemented in the electric telegraph, with each of which, their history and accomplishments, the world is familiar. The two former have still further greatly enlarged the sphere of the engineer. Indeed, without him the railroads would still have been but little in advance of the original tramway, while the steamboat, to the present day, would have merely threaded its way through our rivers or hugged along he coast, unequal to the dangers of the open sea. Fifty years have scarcely passed since science scouted at the idea of a railroad car superseding the stage coach, while it pronounced the project of crossing the Atlantic in a steamship the very hight of folly!

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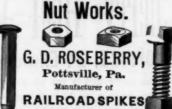
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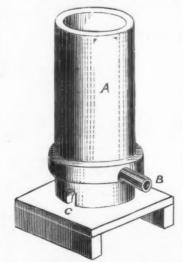
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We take from the records of the Patent Office of Washington the following specifications of certain patents, lately issued, which will be found interesting: IMPROVEMENT IN PROCESSES FOR MELTING AND

PURIFYING IRON. Specification forming part of Letters Patent

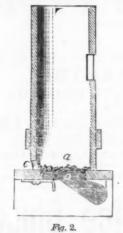
This invention has for its object facilitating the operation of melting cast iron in a cupola or blast furnace, and at the same time carbonizing instead of decarbonizing the "charge" of metal-the latter being the result of the usual process of melting-and also to get the highest degree of heat with the least quantity of air necessary for the combustion of the fuel : and the invention consists, in the first place, of a bed of charcoal in the bottom of the furnace, and, in the second place, the blowing in pulverized state coal oil carbon and gas carbon, the residual products incidental to the manufacture of coal oil and coal gas, as hereinafter fully described.

In the accompanying drawings, A represents an ordinary cupola furnace. B is the tuyere hole: C, the gate or draw-off, and D the hinged



IMPROVED CUPOLA FURNACE, -Fig. 1.

door at the bottom of the furnace. In preparing the furnace for the melting process, after closing and fastening the door D, form a bed of charcoal below the tuyere hole B and place the kindling thereon. Then charge the furnace in the usual manner. With the blast through the tuyere or tuyeres, blow in the gas carbon, or the coal oil carbon, or both, as above mentioned, in a finely pulverized state-



they being fed into the blast pipe by any suitable device-the slag that forms in the furnace lying between the tuyeres and the top of the charcoal bed, which prevents the latter burning out, while the molten iron circulates through cast iron.

The object of blowing in the carbon is to clay and the rest cast iron. take up the excess of oxygen in the air, the The method of operating is as follows: The of air than can be obtained in any other way.

gas carbon through the tuyeres.

in the bottom below the tuyeres. IMPROVEMENT IN THE MANUFACTURE OF IRON

AND STEEL. Specification forming part of Letters Patent

No. 171,024, dated December 14, 1875, issued to Ephraim A. Jones and John A. Jones, of Middlesbrough, England.

This invention has for its object the improving the quality and reducing the cost of converting pig iron or metal into malleable iron or steel in rotary puddling furnaces, or in other furnaces in which puddling is effected by mechanical means.

In carrying out this invention a partial reduction or removal is effected of some of the constituents of the pig iron or metal in a cupola, or in any other furnace adapted for the purpose, by the use of oxides of iron, whether in the form of iron ore, puddling furnace cinder, hammer slag, mill tap cinder, and roll cinder or scale, or other known combinations, and also of scrap iron or steel, or in the furnace which is known as the refinery furnace. A portion of the carbon, silicon, and phosphorus, In carrying out this invention a partial reor a portion of any one of them, is thus elimmalleable iron or steel in a rotary or other me- dered, and the consequent more or less inti- been instrumental in circulating.

much time, as well as fettling and coal,

From the cupola or other furnace, where the state to a rotary puddling furnace, or to any

ing a further reduction or removal of a further in the ore. portion of the carbon, silicon and phosphorus contained in such metal in a rotary or mechanwith the blast through the tuyeres in a finely cupola or other furnace being charged, in a of waste or other heat. molten state, into the rotary or other furnace tained.

IMPROVEMENT IN APPARATUS FOR DEOXIDIZING IRON ORES

Specification forming part of Letters Patent, No. 171,811, dated January 4, 1876, issued to Andrew George Hunter, of Detroit, Michigan. This invention relates to certain improvements in the necessary apparatus for deoxidizing iron ores, and treating the deoxidized products for the purpose of obtaining iron or steel; and its object is to provide an apparatus in which better results can be obtained at a less expense than by the known appliances for the purpose; an apparatus in which deoxidation is effected by means of carbureted hydrogen or carbonic oxide, either alone or mixed with each other, or other deoxidizing gases, derived from and with the aid of carbanaceous matter mixed with the iron ore, which, when being treated, is maintained at a red or higher heat.

In the drawings, in which this apparatus is shown in vertical section, a suitable apparatus is shown for reducing iron ores. It consists of a chamber A, of any desired size or form, closed at the top by the cover B, and at bottom by the floor C, the latter preferably being inclined from the center to the outlet pipes D, which may be provided with proper valves or grates E. Flues F, as many as may be desired, are placed between the inner walls A' and the outer walls A" of the chamber, and G are other open into the open space H, beneath the roof or cover B, and terminate, their lower ends being chamber being a flue and ore dust chamber, from which there should be openings for re-(not shown) connects with a suitable smoke proper stop-cock, as shown, and communibound together, and the flues G, as before remarked, of fire clay, or their upper portions of or they may be entirely constructed of cast iron, with or without stiffening ribs running vided with suitable dampers to regulate the passage of the gases. Various sizes of chamber and pipes may be used. A convenient size is about twelve feet internal diameter of chamber and thirty feet high inside—the per end of the pipes or flues should be fire

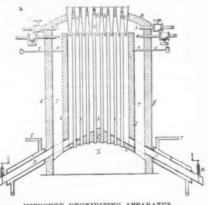
oxygen having a greater affinity for the carbon iron ore, in a crushed or powdered state, is than for the iron. By this process we get the mixed with carbonaceous matter, which should ing within it flues or pipes extending from a requisite amount of heat with a less amount preferably be free from sulphur and phosphorus, in proportions rather in excess of the quantity and softening cast iron in a cupola or blast fur- gen present as oxide of iron in the ore, and nace, by passing pulverized coal oil carbon and charged into the closed chamber, care being taken that none enters the pipes or flues, either floor C, and flues G, outlet pipes D, and hop-2. A cupola furnace having a bed of charcoal the internal or external ones. Combustible gas the internal or external ones. Comousting gas and air are passed in a state of ignition and, by preference, downward through the internal and external flues, thus heating the mixture of iron external flues, thus heating the mixture of iron with suitable stop-cocks, and the hopper R. to its composition, evolves carbonic oxide and carbureted hydrogen in varying proportions. Their gases rise through the mass of iron ore and carbon, and, on reaching the surface, find an exit downward through the pipes or flues, or through both external and internal flues or pipes, and aid in maintaining the heat, when ignited, on meeting the air at the top of said flues. When the mixture of iron ore and carbon has been maintained at a red heat for some

The length of time necessary to deuxidize a inated from the cast iron or metal, and so ren- given quanty of iron ore depends partly on

chanical puddling furnace, and thus saving mate mixture with carbonaceous matter, and partly on the uniform maintenance of the heat, and also upon the refractory or other nature melting of the iron and the partial reduction of the ore under treatment. When it is deor removal of the carbon, phosphorus, and sili- sired not only to deoxidize the fron ore, but con has been effected, take the iron in a molten also to partially carburize the resulting iron sponge, it is necessary to use a greater excess furnace, whether rotary or not, in which pud- of carbon, to employ a higher heat, and to perdling is done by mechanical means, and in such mit the mass to remain exposed to the heat for No. 173,884, dated February 22, 1876, issued to furnace complete the reduction of the molten a longer time than when simple deoxidation is william Batty, of Philadelphia, Pennsylvania. iron to malleable iron or steel, as desired. only required. The quantity of carbon, only required. The quantity of carbon, Claim .- The described improvements in the the degree of heat and the length of exposure manufacture of iron or steel, which consist in to heat requisite, depend not only on the defirst effecting the partial reduction or removal gree of carburation desired, but also on the of the carbon, silicon, and phosphorus, or a fineness with which the ore is crushed or powportion of any one of them, contained in the dered, and upon its refractory or other nature, pig iron or metal in a cupola or other furnace by the means hereic set forth, and then effect-

> By the term "combustible gas" is meant not only gas specially prepared for use, but also ical furnace, the iron or metal from such that resulting from any other available source

> After the ore has been treated substantially where puddling is effected by mechanical means as bereinbefore described, and deoxidized, and, in such manner that iron or steel may be ob- if desired, carburized, if removed in a hot state, it should be placed in air-tight boxes or wagons, in which a little tar, pitch, grease, or other cheap inflammable substance may have been previously placed, in order, by its flame and smoke, to expel free oxygen from the interior of the box or wagon, and thereby prevent oxidation of the iron sponge. This sponge may be allowed to cool before removal from the deoxidizing apparatus. A convenient



IMPROVED DEOXIDIZING APPARATUS

mode of cooling is by prolonging the outlet pipes D, and inclosing them within a suitable flues within the chamber A, and all the flues water jucket, R, so arranged that it may be continuously supplied with cold water, and provided with an outlet, T, for the heated waopen in the chamber I, beneath the floor, said ter. If the iron sponge is cooled before removal from the deoxidizing apparatus, the use of air-tight boxes or wagons is unnecessary; moval of ore dust, and a suitable draft flue or it may be allowed to cool in said boxes or wagons, or it may be taken directly to a press stack. K are hoppers through the cover or in a hot state; but whether allowed to cool or roof, and extending preferably downward, so treated hot, it should be placed in a press and that their lower open ends terminate upon a subjected to pressure, and thereby consoliplane just below the top of the flues herein- dated into blooms, thus facilitating subsequent before described. Lare suitable air pipes, and handling, and reducing the amount of surface M suitable gas pipes, each provided with a hable to be exposed to oxidation. A hydraulic press capable of exerting a pressure of from cating with the interior of the chamber or open four hundred to six hundred tons, or upward, space H, above the top of the flues. N are will force the deoxidized ore or resultant iron dampers, operated from without the walls of sponge into a compact bloom, say six inches in the chamber by means of the rods P, and may be diameter, and from one to a foot and a half in placed in any part of, and are employed for length, according to the length of the chamber closing the flues F when and as desired. The of the press. A less powerful press will proflues should all preferably be made of some duce a less compact bloom, or one of a smaller fire resisting material. The walls of the chamsize. These pressed blooms may then be reber may be constructed of brick work, securely heated, repressed, shingled, rolled, hammered or squeezed and treated as muck bars, or, by preference, used for conversion into steel by that material, with the lower part of cast iron, fusion with cast or pig iron, or, if sufficiently carbureted, without any pig iron in an open hearth steel furnace, with the addition of spielengthwise of the pipes, and should be pro- geleisen or ferro-manganese, for which purpose they are well adapted.

The salient point of the above described invention is the deoxidation of iron ores by means of carbonaceous matter in intimate contact with the iron ore at a red heat, and in utilthe charcoal, and takes up such quantity of pipes four inches in diameter, placed about izing the carbonic oxide and carbureted hydrocarbon as will refine, purify and soften the four inches apart. At least six feet of the upfuel to furnish heat, and in the apparatus described for these purposes. Claim .- 1. A chamber for deoxidizing or de-

space above the mass of ore under treatment down through said mass, and opening into and Claim.-1. The process of purifying, refining requisite to form carbonic oxide with the oxy- terminating in a space beneath the floor of the reduction chamber. 2. The chamber A, provided with roof B,

oxidizing and carbureting iron ores, hav-

The Chinese are good imitators. During the investigation of a riot in the Chinese quarter of San Francisco recently, the following document was put in evidence. It is a proclamation published by the Wing Ye Tong Labor Union, and shows how proficient the Chinese have become in the peculiar social and political phil-

osophy taught them in our enlightened country:
"The members of the Wing Ye Tong So-

[Seal].

This reads very much like some of the trade dering it easier of further conversion into the fineness to which it is crushed or pow- union documents which white laborers have

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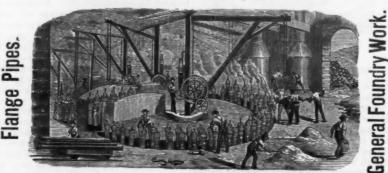
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Conditions of Success in Architectural Iron Work.

Mr. Wm. J. Fryer, agreeably known to ou readers through his articles on Architectural Iron Works, favors us with advanced sheets of a portion of his book on that subject, now in press, from which we take the following chap ter addressed to "Young Men:"

Capable men to manage Architectural Iron Works are scarce. Looking over the field-the enormous business that must certainly be done in every part of the Union-the coming demand for the right kind of men will be greater than the supply. Of men of mediocrity there will always be an abundance. So many requirements go to fill the bill, that first-class men will always be in demand. The foundation must be a natural talent and liking for mechanical work. No one can succeed if incapacitated by disposition or education. The toil must be congenial. A boy who has given evidence of ingenuity and dexterity with the use of tools, can make choice of this pursuit in life, with the certainty of eventually reaping pecuniary independence. and a happy and honorable career. Success it this business depends upon fitness for under-taking it, coupled with conscientious labor. No more honorable or profitable profession o business can be selected. In a country like ours, a claim of superior respectability on behalf of any calling is preposterous; the cir cumstance of being an American citizen is sufficient to adorn with all proper dignity any trade or profession which a young man may adopt In point of real and essential respectability, all trades and professions are equal; and the social position which a man enjoys, and the degree of respect which he is able to command, depend not upon his trade, but upon his individual character. Thousands of young men have entered the learned professions when they were already crowded, and are consequently wasting their lives in vain hopes; and other thousands have devoted themselves to the pursuits of ommerce without capital, prudence, or intelligence sufficient to avoid the dangers of com mercial enterprise, to become either bankrupts or involved in a series or embarassments which may last through their whole lives. An error in the choice of one's profession is one which is followed by painful consequences, as many have found to their cost.

Having made a choice of this business, and ssessed of a good common school education, there must follow some years of practical learning. First should come an apprenticeship of not less than two years with an architect of large practice, so as to become familiar with the plans and constructions of buildings generally, the making of detail drawings, and the way and manner of doing things generally in such an office. Then in the shop-one year in the pattern shop; two years in the foundry, learning to become a molder; and two years after that as a finisher, in fitting up cast iron work, and doing wrought iron and blacksmith work. These seven years of continuous daily toil will be happy years. At their expiration the man-it is to be hoped a gentleman, withal -will be fitted to take off quantities from plans, to make estimates and secure contracts, and superintend with intelligence and authority the workmen under his care. With the age of manhood, the heavy duties and fearful re sponsibilities of active life will come to him when his judgment is matured, his understanding ripened, and his nerves hardened for the rough encounter of conflicting interests and unforeseen emergencies.

On his energy, perseverance and skill will de pend how large a sphere he will fill. It ail de-pends on himself. If inspired by an honest ambition to excel, and willing to study the literature which modern book making has placed so easily within his reach, his chances of success in life are far more numerous and certain than those of any other class of young men in the community. The business openings will be sufficiently numerous to satisfy the largest am-

It is of great importance that his leisure tim be given to the cultivation of his mind. If the physician, the lawyer and the divine, avail pin raising in use. This is accomplished themselves of the assistance of science and literature in their several professions, the mechanic has still stronger inducements for doing the same thing; for, to none of these profes sions are the results of science so directly ap plicable, and for none of them are the recreations of literature so appropriate or gratifying 2. Driving out the pin when desired is easily By making himself master of those principles which are most intimately connected with architectural iron work, he, while satisfying a liberal curiosity, may possibly be approaching some brilliant discovery which will speedily conduct him to fortune and fame. Each of the mechanical trades affords ample room for the exercise of ingenuity in the improvement of its processes, and the consequent improvement of low as the old style Reversible, and are fast its products. Abundant trade periodicals exist, journals devoted to architecture and building to engineering, to the iron interest; from a thousand sources, ideas are to be got.

It is not desirable for a man to devote every moment of his time to the business by which he lives. Such intense application is injurious both to the body and the mind. It destroys health, racks the brain and ruins the temper. The repose of the domestic circle, the quiet hour for reading, or relaxation of some other kind, seem absolutely necessary for the preservation of that greatest earthly blessings-a sound mind in a healthy body. A mechanical business, a life of activity and labor, is far from being unfavorable to the highest operations of the intellect; and that relaxation from active labors is most appropriately found in mental recreations. Whether, therefore, he addresses

neglect no opporrunity of improving his mind. Seasons of depression may affect more or less and the evening fire-side. There is no class of mischance as mechanics. If more of our intelligent young men, with good educations and good social positions, would learn the various the capacity to grind coffee for one family. nechanical trades, fewer of them would have eccasion in after years to bemoan the wasted opportunities of youth, and the fruitless strug-

les of an unsuccessful life. If a young man has received a college educa on it is well. But let it be understood, that those who utterly lack in high scholarship, have the same open road to an honorable, use ful and independent career. Indeed, it is bet ter that the practical art precede the science. One great thing needed, that cannot be learned there is scarcely any profit in it-hardly page in school, is how to deal with men; how to nake them work in accordance with your ideas. You may make a perfect plan, and have a com plete drawing, but if you cannot impress it ipon your foreman of pattern makers, it will not prove a success. And so in every department. The difference between a beautiful line and one which has no beauty whatever, is very frequently a mere nothing-so undefinedly small that one can scarcely say in what the diference consists. If you have the skill to add the finishing touches to a set of patterns, or take a file and clean up a part that needs but a ouch to make ft perfection, you will not only nake an admirable workman, but will do much oward a high standard of work in the shop. Some of the finest pieces of wrought iron work extant, were designed by men who blew the bellows and swung the hammer; and the same may be said of some of the best examples of ast iron art work. The value of many manufactures is chiefly due to their beauty. There is hardly any limit to the market value of eauty-that element in manufactures which responds to the finer sensibilities of man. Not only the methods of working, but the nature and capabilities of materials must be understood. A design that would be admirable in silver, would in all probability be hideous in cast iron. The quality of an article may be said to consist of three principal elements: 1st. A apta ion to the purpose for which the object was made; 2d. Durability; 3d. Beauty. For instance, a column should certainly possess the first two elements; and, all other things being equal, every builder will sooner pay his money for a handsome column than for a homely one. He may not be willing to pay an additional dollar for a column, simply ecause of its beauty; but since it is as cheap for an iron man, who has good taste, to give his column a certain degree of comeliness, as to make it atrociously ugly, he finds his profit

in a readier sale, No matter what amount of mental culture a man brings to this business, he cannot bring too nuch. If an apprentice be lacking in certain kinds of book knowledge, he can and must acquire it. The practical man separates useless stuff from that which is valuable, and he can more easily acquire knowledge on special subjects, than can the school man acquire practical knowledge of tools and machinery, the management of labor, and the general principles of economy in construction, maintenance and working. Each is possessed of certain knowledge that the other must learn; and years of study, years of labor will make them equal. The one having the most energy and persever-

nce will prove the better man. Executive ability, business tact and good nanagement in finances—these come after an experience of the annoyances, anxieties, discomforts and sufferings inevitable to business life. As a matter of policy, as well as of duty, an upright, moral life-ever truthful and strictly honest-is the best. "For what is a man profited, if he shall gain the whole world and ose his own soul ?"

This short chapter is for the kindly encourgement of young men who desire, or are about to follow, this branch of business, or are actually engaged therein. I would especially caution young men not to care for the ill-natured remarks that may be said of them. Jealousy, envy and malice will pursue always, and to the sensitive cut to the beart. It takes many years courageous heart is necessary in the fight. Bide your time patiently; the turn of Fortune's wheel brings many changes. Mind your own business, and treat all men in accordance with the golden rule. Confide in your own strength without boarting of it; respect that of others without fearing it. Have enthusiasm in your calling, faith in the future, intelligence in your work, endurance and an unconquerable will. Above all, lose no time.

Iron Making in Oregon.

A correspondent of the Sharon Herald writes the blast furnace in that section :

It is not extensive, as you will see by my description of the only blast furnace in the State, and the only one on this coast-a furnace three miles from any rolling mill, settled down behind make the pieces impervious to water, they are River-a rude structure, indeed, compared with these processes are conducted automatically. those of your State, with their modern improve- From the time the clay goes into the mill and locality, at an enormous expense, for it is of a 150 tons a day with one set of machinery, and flinty nature, and almost resists the edged the product will be sold for one dollar less than tool. The hearth was of the same material, but the price of stove coal. Contracts have been himself to increasing the quantity or improving has lately been replaced by the patent hearth made for all the epal dust at the Richmond the quality of his manufactures, the paths be-fore him are wide enough for his greatest expense. The hot-blast was formerly of stone, Lehigh region. The new fuel will be shown at expense. The hot-blast was formerly of stone, Lehigh region. The new fuel will be shown at

What most astonished us was their power, pavilion, near Machinery Hall.

which is water, brought from a lake three miles distant, in flumes. It furnishes very regular such a man, but these cannot rob him of his power, and never fails, as the lake is supplied capital gained at the bench, the drawing table by the river. I cannot refrain from repeating an expression a friend of ours, uttered as we men so absolutely independent of chance and came driving down the hillside and found it so small and in such a peculiar position; he remarked that "It did not look as though it had

You would ask if it were a paying institution, and the answer would be, it has never been a success financially, and probably never will be, or, at least, not for a good many years, unless there should be a mill attached and the fron finished here. It has now to be shipped to San Francisco at an enormous expense, and costs about \$40 per ton to deliver it on the ships, and their capacity is only about 12 tons per day This being the case, you can readily see that the expenses. It has lately been taken in charge by an experienced man from Ohio, and her are in hopes to receive some benefit brough his superintendency.

There is plenty of good ore in the vicinity, and charcoal costs eight cents per bushel, there eing no stone coal here that will do for the nanufacture of iron. There are some few mines, but the coal is of an inferior quality.

The Oil Pipe Lines.

It is well known that nearly, if not quite, all the transportation of oil in the oil regions from wells to the railroads or river is by mesns of pipe lines. These pipes, which are generally three inches in diameter, are laid upon the sur face and form a perfect net work over the entire oil region. The main pipes generally follow the highway, and resemble huge black snakes, the resemblance being hightened by the fact that the pipes are laid in long bends to allow for expansion and contraction, which are considerable. To these main lines auxiliary lines are laid from the wells, and the product of the various wells in the end are united, and together find the point of shipment, no attempt peing made to keep the oil from the different wells separate. At intervals along the line pumping stations are placed, the distance apart eing determined by the nature of the surface and the consequent effect of gravity in conveying the oil.

The heaviest tax on oil is the cost of shipping fther the crude or refined to the seaboard, and the feasibility of the plan of shipping the oil to the coast by pipes has often been discussed. The largest line heretofore built has been that of the Columbia Conduit Company, which is from the Butler oil district to Pittsburgh, some 30 miles. It is now rumored that a party of Eastern capitalists have projected a new pipe line from a point in the oil region direct to New York city. There are to be thirty pumping stations on the line, which, in the extent of its operations, will throw the Conduit Company into the shade. The projectors, it is stated, are now engaged in looking up sites, and the project will be pushed forward vigorously. It is rumored that the Pennsylvania Company have an interest in the project.

Coal Dirt as Fuel .- The Chronicle, of Harrisburg, says: The problem of the utilization of coal dirt seems to he in a fair way of solution. The trouble has always been that it would not burn because it was too compact, and would rather smolder than ignite. For fifty years that has been the one great impedinent, and scientists could not overcome it. Finally, however, Superintendent Wootten, of the Reading Railroad, thought of introducing a steam blast through the coal from the bottom in the hope of penetrating the mass and supplying plenty of air. He built a furnace specially for it, and placed it under a stationary ngine boiler. Instead of using grate bars he employed a perforated iron plate for the fire to rest upon. A pipe from the boiler conveyed the steam and the necessary pressure supplied the blast, and this stroke proved to be the key note of the entire coal dirt problem. It burned freely and threw out an immense heat. The oldest dirt was used to see if it possessed burn ing qualities, and it was found that it consumed freely, the same as the best of coal. It was next tried in the furnace of a locomotive enine, and was found to burn equally well. The ability, trade slanderers will pursue, and a other day, when the wind was blowing at the velocity of forty miles an hour, a coal dirt burning engine took up a train of one hundred cars through the valley with the same ease and with as little labor as an engine burning the very hest anthracite coal. This is regarded as a great revolution in the coal and iron country, because it transforms at least 1,000,000 tons of heretofore useless coal dirt into a fuel worth. at the very least, one dollar per ton, and provides a way to consume all coal dirt that may come to the surface in the future.

The machinery invented by Dr. Loiseau, of Mauch Chunk, Pennsylvania, for making fuel as follows from Portland, Oregon, concerning from anthracite coal dust, is working very well. The new fuel is composed of ninety-five per cent, of coal dust and five per cent, of clay, with a small amount of a glue-like mixture made of rye flour and slacked lime. It is in thousand miles from any other, and six hundred pieces of the shape and size of hen's eggs. To a bluff almost in the mountains, nine miles from dipped in a solution of "candle-gum," a rethis place, on the bank of the Willamette siduum of paraffine and crude benziñe. All ments and conveniences. The furnace is con- the coal dust falls on the separating screen, the structed of wood entirely, except the stack, material travels a distance of 748 feet without which was hewn from the natural rock of the being once handled. The factory will produce the Centennial Exposition, in a large iron

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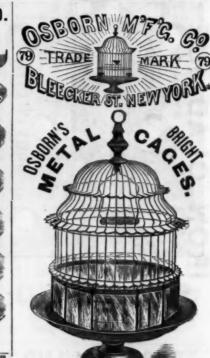
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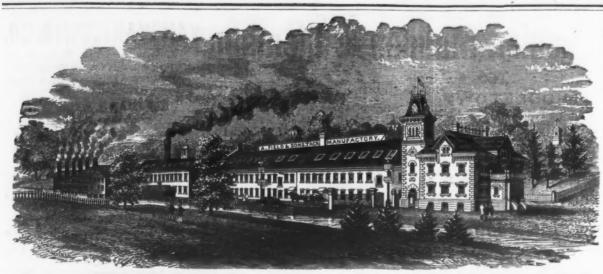
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Giant Powder.

Some weeks since we gave our readers an ac ount of the use in Europe of dynamite in blasting large masses of iron and steel. At the time of the appearance of the article, Mr. Ed. W. Powers, of Youngstown, Ohio, was en-graged in breaking the salamander of Isabella Furnace No. 2, at Pittsburgh. At our request Mr. Powers kept a record of his work, which we give below. In justice we should say that he has broken up several large salamanders during the past three years, and that this case consequently no experiment based on the re sults of the European practice referred to Some months ago Mr. Powers broke a salanander for the Mingo Furnace Company, at Mingo, near Steubenville, which weighed considerably over 100 tons. The following is an ecount of the operations on the Isabella sala-

DIMENSIONS OF SALAMANDER.

As will be seen by Fig. 1, the shape of the

face of the salamander was very nearly circular, but somewhat irregular, as was also the thickness. The material was entirely iron, and the weight, as nearly as could be figured, was as given above.

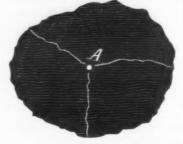


Fig. 1. In the center of this mass at A, Fig. 1, one

hole, 30x11/6 inches, was drilled.

The first charge, of 12 oz. of giant powder, was intended to clear the hole of some drillings, and enlarge the hole at the bottom. This was done satisfactorily, the hole expanding to 21/3

The second charge, of 18 oz., was well tamped in with dry fire-clay and exploded. The result was the breaking of the salamander into three pieces, as indicated by the lines in Fig. 1. One of these pieces, shaped as in Fig. 2, was



drilled at A, with a 20-inch hole, and charged with 24 oz. The first blast broke the piece into four pieces. The bottom was split off horizontally, and the top broken, as shown in the cut.

The second of the three pieces into which the salamander was broken was drilled in the center with an 18-inch hole. The first charge, of 12 oz., swelled the hole at the bottom, and cracks could be seen at the mouth of the hole The second charge of 10 oz, broke the mass into

The third piece, Fig. 3, was drilled with a 24



inch hole, and charged with 24 oz., and broken at the first blast into five pieces, the bottom splitting off, as in a tormer blast, and the top

the cut.

Afterward each piece was drilled and broken, and the blasting continued until no piece weighed over a ton and a half, the most weighing from 500 to 2000 pounds. In the smaller pieces the holes were not drilled more than lish a center point on the line already down, from 10 to 14 inches deep, and 1½ inches in then two other points at convenient and equal diameter. The charges were from 6 to 12 distances on each side of the center point; ounces, and in almost every justance the pieces then procure a long sweep, and, from the points were broken at the first blast. Most of this made, describe two short arcs, and where these blasting was done right in the hearth of the furnace, and no damage whatever was done to stack, pipes or buildings. No pieces of any main line draw a line through the point last

size were thrown more than from 10 to 15 feet. No words of ours are necessary to impress upon furnace managers the importance of this method of removing this mass of iron that acof the ugliest problems he has to contend with has been its removal. The usual plan has been umns had to be removed. When it was once unsightly proportions out of sight, and was fortunate if he could get out of mind that scores of tons of iron were thus consigned to an unnatural grave. Near old furnaces there are

At an expense of some \$250, the Isabella was spared such a funeral, and, better still, were able to dispose of the body at \$11.50 per ton, the mass selling for \$805, and for what has heretofore been considered a dead loss. We are

Breaking the Salamander of the Isa. was drilled into the center of the mass to a bella Furnace, at Pittsburgh, with depth of 30 inches, a charge inserted and exploded which broke the mass into three parts of almost equal dimension and shape, the breaks being very regular throughout. other charge was put into each of these three masses, and they in turn were broken into three smaller masses, the breaks being as regular as before-in fact almost geometrically precise. Some of these pieces are composed almost entirely of pure iron, while a slight mixture of stone is found in others. Over a bundred tons of metal have resulted.

The 81-Ton Gun.

The following is the latest in regard to this latest pet of the Woolwich Arsenal

The 81-ton gun has been enlarged from 141/2 in. to 15 in., and a third series of rounds fired from it, with the view of ascertaining its per formances under the altered condition. The results obtained are recorded below, and although the differences, as compared with the first series, are small, they indicate increased velocities and reduced pressures in the gun. It will be noticed that the pressures were very uniform, with the exception of that in the third round, which rose above the 25 tons per square inch, assumed as the safe working limit, and compares with those exceptional pressures recorded in the fifth and sixth rounds of the first series, where, with charges of 230 lbs. and 240 lbs. of powder, the pressures were 29.6 and 27.3 tons per square inch respectively, and with the eleventh round of the second series, in which, with a powder charge of 220 lbs. of 1.5 in. cubes, the pressure mounted to 28 tons per

Number of Round.	Size of Powder.	Weight of Powder Charg	Weight of Projectile.	Muzzle Velocity.	Total Energy in Foot-Ten	Foot-Tons of Energy P Inch of Shot's Circumfe ence.	Foot-Tons of Energy P Pound of Powder.	Mean Pressure in Gun.
	in.	lbs.	lbs.	ft.	tons.	tons.	tons.	tons. per sq in.
1	1.7	220	1260	1513	19,994	424.32	90.88	51.0
2	1.7			1546		441 19	90.39	85.0
8	1.7		1460			304 92	99.58	26.3
4	5.0			1536		437:33	80.32	23.3
5	5.0			1354		399.59	85.28	24.4
6	1.7	220	1460	1424	20,529	435 60	98.31	53.8

The gun will shortly be tried at long ranges against armor plates. The ultimate capacity expected when the maximum bore of 16 in. is reached, is a penetration of 27 in. of solid armor, at a range of 1000 yards, and with a shot weighing 1800 lbs. If the statements recently published in the Times be correct, the perform ance of the great Krupp gun recently tried has given higher results than those recorded above. The weight of this gun is 57.5 tons, and its caliber is 13.78 in. The projectile weighs 1210 lbs., and the powder charge is 297 lbs. In recent experiments it is stated that an Inflexiible target, with 24 in. plate, was pierced at a distance of 1968 yards. The muzzle velocity is given as 1640 ft., which would give a total energy in foot-tons of about 22,600, and per inch of circumference of bore, 523 tons. The foottons per pound of powder charge, however, falls to 76.1, showing that the weapon is strained far more severely than the 81-ton gun.

Hanging Shafting.

Mr. R. James Abernathy, of Moline, Ill., gives the following practical hints on putting up shafting:

A line of shafting should be perfectly straight, with no twist whatever in the bearings, and more particularly so if it be a rapidly moving shaft. A very quick moving shaft, with the least possible twist causes unnecessary friction, and makes a wonderful difference in the power required to drive it; and in slow moving shafts the difference is proportionately great.

The first or main line of shafting ought to be squared with the building, and all other lines whether parallel to or at right angles, should be taken from that. Parallel lines can generally be carried over by correct measurement from extreme points, and this is really the most correct way of getting counter lines.

For a line running at right angles, first estabtwo arcs cut or cross each other, make a point, main line draw a line through the point last made. If done very correctly, it will form an exact right angle or square line. This, in geometry, is called erecting or raising a perpendicular, and it is among the first lessons cumulates in the bottom of blast furnaces. One taught in that branch of mathematics. To the practical mechanic it frequently becomes useful in many ways. Lines of shafting running to jack it out with hydraulic jacks and rollers at right angles are always connected by bevol at a great expense. If it were very large, color miter wheels, and in gearing these together it is important to have the centers very exact, out, the furnace master hastened to bury its as the least variation will make the teeth bind. causing them not only to run hard but to make much noise. Pitch lines should run together, or as nearly

so as possible. In this respect, however, millwrights are frequently troubled on account of wheels not matching properly. This is the fault of the pattern maker. In such cases the mill-wright must exercise his judgment in set ting them together so as to run freely and

In addition to being perfectly straight, all lying or hanging shafting must be perfectly level, and all upright shafts must be exactly Powers has broken the salamander of the fur- plumb or perpendicular. By following these few simple directions there need never be any

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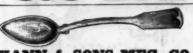


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We have this day withdrawn the Agency of our TABLE AND FOCK ET CUTLER Y from ROWE, BABCOCK & POST, of No. 120 Chambers Street, New York, and placed our goods with THE WIEBUNCH & HILGER HARDWARE CO., of Nos. 84 and 86 Chambers Street. New York, who will act as our Agents, where a full line of our samp es and goods may be seen.

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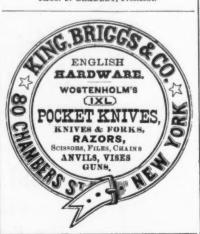
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Office of The Iron Age, 220 South Fourth st., PHILADELPHIA, April 18, 1876.

Since our last letter we have had clear but cold weather, and, judging from present indications, we shall have rather a late spring. General business is fairly active, and, keeping in be held in abeyance until the opening of the Exposition, our merchants are well satisfied the broad field to which science is wedded. with the present condition of affairs. Collections are a little slow, but money is in fair supply, and obtainable at five to seven per cent. on good commercial paper.

In the coal trade there is no important change to note. The block of cars on the railroad from Port Richmond continues, and individual operators are much inconvenienced by the molding machinery, the Northern Lumberman scarcity of cars at the mines. The supply of coal at the tide-water points of distribution, however, is very large, while the demand is exceedingly light. The bitumious trade is more active in the Cumberland District, where there has been a reduction in wages to fifty-five cents per ton for mining, and for labor and "heading work" in the same proportion.

In the iron trade there is no special change to note; buyers continue the hand-to-mouth policy, and production is still in excess of the demand. It is reported that some of the most extensive operators are intending to blow out their furnaces at the end of this month, but we understand that no final decision will be reached for several days. We have been favored with a communication as follows, in regard to the Wilson process of making blooms and puddled fron: "A recent experiment made at Split Rock, N. J., with ores furnished by one of the best Catalan forge companies, and in presence of some of the companies' officers, demonstrates the great value of this invention. The above company have hitherto been using in their improved Catalan forges 270 already about 30 bushels less than other less improved forges have to consume, and at their trial at Split Rock two tons of mediocre iron ore produced, in less than 10 hours, 2103 lbs. of hammered charcoal blooms, by using only 120 bushels of charcoal, which, in fuel alone, amounts to a saving of \$13.50. It is, beside, generally admitted that under more desirable circumstances as to plant, &c., the result would have been still more favorable. One of the great features in this process is, that ores heavy in sulphur do not interfere at all in the nanufacture of either blooms or puddled iron, and that in puddling furnaces the lining, ores done away with, as the ores, before going into the deoxidizer, have to be ground first. It is to a greater extent in "smalls," or fine, such a plant would be of very great value, and what now leaves a loss to miners could be utilized in the manufacture of blooms by this process. The cost of erection is comparatively so small. and the royalty claimed by the inventor so moderate, that no mine of any account should be without such an apparatus."

At the Centennial grounds work is progressing very rapidly, but if the official announcement is carried out that no goods will be received after to-morrow, at least one-half of the exhibits will be excluded. On Saturday at least 100 cars were handled, while 50 cars were waiting to be unloaded yesterday morning, and 167 cars additional arrived during the day, but the arrangements for delivery are so excellent that there is very little inconvenience in placing the goods in their assigned position.

In Machinery Hall exhibitors appear to immense amount of work that has to be done, the force employed seems to be en-tirely inadequate. In the main building more activity is manifested, and some parties have their exhibits in position ready for the opening day, but as they are carefully covered with canvass curtains, we are unable to give a detailed report as to the character of their exhibits. We had an opportunity of seeing the Hart, doubtless attract a great deal of attention from the trade. The Colt's Fire Arms Co. has also a magnificent display of arms, including several Gatling guns. The arrangement of the exhibits ware and machinery exhibits; in the meantime, but few firms have their goods in position, so that full reports cannot be given at present.

The Centennial Committee of the American Institute of Mining Engineers has now thrown open the doors of its apartments to the engineers of the world who may come to witness the great fair, and who will be properly introduced. These rooms are intended to be a center of social reunion for all members and associates in the city. They will prove a convenient resort for foreign engineers, metallurgists and geologists who are desirous of meeting their American colleagues, or of obtaining information and assistance in their study of American resources and industries. For example, should a foreigner desire to visit the country surrounding Lake Superior, he will be furnished with a stitute has now a membership of over 500 | are running yet. This is a very good showing

PHILADELPHIA CORRESPONDENCE. among which number are reckoned the best authorities on subjects of mining and metalurgy in the world.

In its labor of diffusing practical knowledge the institution will be assisted by the mining engineers in charge of the department at the Exhibition, the two secretaries, Mr. William G. Neilson, of the former, and John Bogart, of view the fact that many orders are believed to the latter, uniting in the promotion of reliable and eminently useful information concerning

Pressure Bars in Wood-Working Ma-

In an article on pressure bars, which are just now a subject of peculiar and special interest to manufacturers and users of planing and says:

Users of planing and molding machines are just now greatly interested in any device for holding down lumber to be planed. The famous pressure bar, about which so much has been written within the past year, has been more universally used for that purpose than any other piece of mechanism. The invention of it is claimed by Woodbury, or was before he was called to a land where pressure bars are unknown. It has been in use for nearly 30 years, and as it answered the purpose, and previous to 1873 was not patented or subject to vexatious royalties, no particular effort was made to sup-

When, in the year above named, in the inscrutable wisdom of the department it was made the subject of letters patent duly granted to J. P. Woodbury, it became a very essential question as to whether, leaving out of consideration the morality or legality of the claim, the pressure bar was the only and really best thing for holding down boards to be planed. The history of the great patent, and of the litigation now in progress to test its validity, is bushels of charcoal to a ton of iron, which is familiar to our readers. A stock company, composed of Boston capitalists, is pitted against the users of planing machines throughout the country, from whom it demands an exhorbitant and outrageous royalty.

In February and March, 1874, patents were granted to William C. Horton, by the same commissioner who issued the one to Woodbury, upon a device for holding down lumber, which is intended to supplant the Woodbury ber. Previous to any known date, when the har was first used, an appliance known as the Wcodworth roller was in use upon planers and molders, which was patented, and which was about as great a monopoly, barring the difference in and accompanying expenses can be entirely the number of machines used then and now, as the Woodbury will be if its claims are sustained in the courts. This roller, though at first the evident that at mines where the iron ore appears only thing in use, was open to serious objections, as for instance, its point of bearing being of necessity so far away from the knife of the cutter-head as it entered the board, the chips would split back a distance of two inches or more before breaking, especially in the case of cross-grained stuff. The chips were also liable to pass under the roller, and from the pressure, mar the planed surface of the board, while the roller itself would become coated with gum.

In the substitution of the pressure bar for the roller, each of the above named difficulties were overcome. A flat surface was pressed upon the board, under which chips would not pass, and as it was made concave to suit the convexity of the cutter head the chips had no chance to split back, as the bar could bear upon the board within a sixteenth of an inch of the cutting knife. Still, the Woodbury bar was not, and is not, perfect or free from objections. It presents a flat friction surface of from 18 to have made very little progress in getting 24 inches to the board, requiring considerable their exhibits in order, and in view of the additional power, which, when a number of machines are driven by one engine, is of no small consideration. Also, in planing or matching stuff of various widths the bar wears away faster in some spots than in others, and when wide stuff is to be planed an uneven surface is presented which is not at all desirable.

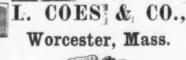
The device upon which patents were issued two years ago to Horton consists of a peculiar combination of a bar and roller with a steel Bliven & Mead Manufacturing Co.'s exhibits, scraper; the first elevated from the board a which consists of a splendid assortment of car-sixteenth of an inch and acting as a chip penter's tools, builder's hardware, etc.; also, breaker, the second exerting the pressure, withthat of the John Russell Cutlery Co.; both out the friction, of the Woodbury bar, while these firms make a splendid display, and will the third effectually prevents the accumulation of gum or dirt upon the roller. As in this combination two of the most objectionable features peculiar to the bar are removed, it would seem that the best possible device for of this firm have been made with great taste holding down lumber to be planed, is by it proand are deservedly admired. The exhibits of vided. The fact that a board can be passed through a planer with less power when the consisting of house furnishing fancy wire pressure upon it is exerted by a roller, instead goods, is also exceedingly tasteful and has a of a friction surface, is so apparent to mill-men very attractive appearance. In our next letter as not to require comment. The same terms of the as not to require comment. The same may be we hope to give fuller details in regard to hard- said with reference to the efficacy of the action of the bar, or housing to the roller, which acts as a chip breaker. The purpose is just as well served with the bar raised a sixteenth of an inch from the surface of the board, as when exerting a pressure upon it.

The elevation of the same prevents it from being a "pressure bar." As the roller and housing, or bar, move as one piece, in fron grooves, the same relative position is always preserved. The roller rests upon and holds down the board-the bar never touches it. The steel scraper keeps the roller clean and free from gum, while the board passes freely through, without any liability of becoming "stuck," as with the bar, and at the lowest possible expenditure of power.

A set of wheels cast at the railroad foundry description of its geology; or, should his in in Sacramento, Cal., were recently taken from clinations lead him to explore the anthracite under a baggage car of the California and region, he will receive full and interesting de- Oregon express train. They had made a miletails in advance, such as would enable his age of 91,800 miles. Another set recently respeedy acquisition of knowledge that would moved made 80,000 miles. Some wheels under come otherwise very slowly, if at all. The In-

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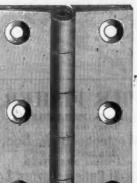
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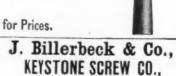
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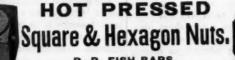
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The Legal Aspects of the Anthracite Monopoly.

some interesting figures of the cost of making iron in Pennsylvania, showing, among other things, that the item of cost which ed upon any party who should transport has been best maintained while all the others have declined, is coal. For the convenience of our readers we reproduce from the table mentioned the columns showing the average cost, in 1863, of making a ton of pig iron in a furnace advantageously located in Pennsylvania, using anthracite coal, and the cost per ton of iron made in the same furnace in March.

Ore per ton of pig	1861. \$7:35 3:26 1:17 1:97 2:86	Mar. 1, 187 \$9 6 1 3
Cost at furnace bank	\$16.11	821
Add interest of capital on product of 6000 tons	1.57	11
Total cost to producer	\$17.68	\$28
The fact that gres have	not	declined t

transportation by rail. The development of the vast resources of Virginia will probably correct this evil in time, by increasing the supply and encouraging a more active competition among producers. Where ores are abundant prices at mines are nearly as low now as in 1861. The increased cost of limestone is also due to high railway freights, and does not much benefit the producers, if at all. Labor is cheaper per ton of iron made than in 1861, and the margin of allowance for contingencies is smaller, owing, probably, to a skill in furnace management; but the cost of anthracite coal is a little more than double what it was in 1861, and it is not likely to decline unless the combination among mine owners and carriers can be broken up. Let us examine the situation, and see whether consumers of coal have it in their power to protect their interests.

It is well-known that for some years past the coal trade has been maintained on an unnatural and artificial basis by means of combinations among the great mining and carrying companies. Neither the supply of coal nor the price of it are any longer regulated by competition, but are determined upon in council. The determination reached is, of course, as favorable to the operators as possible, and from the decision when reached the consumer has no appeal. This system works very well for those in the trade when there is a large and regular consumptive demand, for the middlemen, or jobbers, can then exact from consumers prices which will pay them a profit; but in times like these the middlemen are suffering heavily. They are obliged to contract for large supplies long in advance, and when they are compelled to cut down prices in order to sell at all, they must go to the wall-as many of them have lately done. In the meantime the companies keep up their prices, only shading them on very large contracts-if at all. So long as they keep in harmony with each other they have nothing to fear from competition. They control production, they control every outlet from the coal regions to desirable markets, and when they fix prices they are certain to stay fixed until their agents shall themselves change them.

In the combination of miners and car riers we have a monopoly of the werst kind. If that were all, we might fold our hands in despair, and wait until the combination should fall to pieces from causes beyond our control. But we also have a conspiracy to attain results prejudical to the public interest, which is illegal, and could be broken up, if the proper means were taken to do. It would be a great and costly undertaking, for the vast wealth of the mining and carrying companies would be employed with powerful effect to defeat the enforcement of the laws against them but the results would be worth what they had cost, and would open the way for the passage of legislative enactments which could be made effective in correcting many of the worst abuses in the coal trade The fact that the power of the courts has not been more often employed to protect the public against illegal and improper trade combinations, formed to advance prices, is, chiefly, because such combina tions are usually short-lived. There are, however, cases on record in which the Twenty-third Page.—Our English Letter. The illegality of such combinations has Wood Planing Machine. Twenty-fourth Page.—Business Items. The been distinctly affirmed, and precedents thus actablish the precedents thus established could not well be disregarded by our courts. For example, in the case of Hooker ce. Vandewater (4 Denio, 349) it was shown that the proprietors of five lines of transportation on the Erie and Oswego canals, in this State, combined for the ostensible object, as was set forth in their agreement, of establishing fair and uniform rates of freight, and equalizing the business among the parties. The real object, however, as was shown by the evidence, was to raise the rates of freight on these canals. An In our issue of last week we published agent was appointed to manage the affairs of the association, prices of freight were settled, and a penalty provided to be visitfreight at lower rates than those prescribed by the association. The agreement also provided that at certain intervals the profits should be equalized among the members. The plaintiff and defendant were members of the combination. The plaintiff sued to recover a balance due to him from the defendant under the provisions of the agreement. The defendant set up the defence that the contract was void under the provision of the Revised Statutes against conspiracy. This provision reads as follows: "If two or more per-'sons shall conspire to commit any act injurious to trade or commerce, they 'shall be deemed guilty of a misde-

'meanor." The court held that the plain-

law

434), the facts were very similar to those just described. The proprietors of thirty less credit. Thus his pretense of bank- a short truck. We have seen a selflines of transportation, on the same canals, combined for the purpose of increasing tion of from 40 to 90 per cent. of his in- its way up Fulton street, in this city, on a the profits of their business. Their agree- debtedness, and he goes on as before. In greasy, slippery day when the street was ment was similar to the one described many such cases it is probable the volun- jammed. It being on an experimental trip, above, differing only in this, that it provided for a committee of several members, strict accounting had been exacted; in cleared for it, and the steamer took its who were to regulate the prices from time to time. The action was on a note, made all concerned had the business of the bank- about in the throng. Its presence was but by the defendant, who was a member of ation, and also on a bill of exchange, drawn by the agent on the defendant, and able and unfortunate men a chance to refor a balance against the defendant on the books of the association. The court held that the plaintiff could not recover, for the reason given in the case of Hooker vs. Vandewater. The principle upon which these cases were based was, that whatever destroys or slackens competition and rivalry in business is necessarily injurious to trade; that it is injurious by increasing the ing increase in value; that it, in fact, decreases the value of the article manufactured or dealt in, the manufacturer or attention upon his business, and being reof them, protected, as he is, by the articles do not fix the quality of the article. Such being the principle, any combination which prevents or impairs competition and rivalry in business is a conspiracy injurious to trade within the meaning of the statute. It was intimated in one of these cases that an understanding among retail dealers in a city or town, as to the price of an article from day to day, might be a conspiracy if carried too far and accompanied by unjust regulations.

> With many precedents of this kind to be found from a careful search, it is obvious that contracts made with, by and on behalf of the companies in conspiracy to control the production and price of coal are void. Are such combinations also criminal offences? In the case of conspiracies among workingmen to control the labor market, they have been held to be misdemeaners, even where no physical violence was used or breach of the peace occurred. There are, however, certain material differences between trade nnions and combinations among business men to advance the price of commodities and transportation. In one case somebody has an active and immediate interest in adopting measures of self-protection; in the other the victim is the public at largea very complaisant body, having so many other interests to attend to that it cannot bestow much time or attention upon combinations of this kind. We believe, however, that the great coal combination, though armed at all points, is vulnerable at this one, being illegal and contrary to the public policy, and that if those who suffer most from its arbitrary and oppressive policy should make common cause, they could break its power for further mischief without great cost of money or trouble. The iron masters may be compelled to resort to this policy for their own protection before long, unless the forces now at work to break the price of coal and set the rival companies at cutting each others throats, shall soon produce the results hoped for.

Bankruptcy Made Easy.

During the past three years the process of going through bankruptcy has been for many people vastly easier and more profitable than paying debts and conducting houses on legitimate business principles. It has been the custom for a merchant who finds himself saddled with a large stock, and with but few customers, to put away a convenient amount of his personal assets in some safe place, and then call a meeting of his creditors. He lays before them a statement of his affairs, declares himself unable to pay his debts; argues that if his stock were sold for the benefit of his creditors they would realize only a part of their claims; professes a determination to pay principal and interest of every debt he owes as soon as possible, if his creditors will only give him a chance; and, finally, offers to compromise, paying anywhere from ten to sixty per cent. In too many instances the creditors, actuated by a feeling of sympathy for the unfortunate train of wagons, coupled together so as to of from 11/2 to 3 or more gross tons. Such bankrupt, have accepted the proposition made them without sufficiently close and springs and capable of carrying from 3 to careful investigation. The unfortunate 5 tons each. Ordinary 4-horse wagons or crane to run on them. In many places tradesman pays the sum agreed upon, trucks will answer very well by substitut. such an engine could be made to take the takes a receipt and goes on doing business with a stock which has cost him from ten the pole. The engine itself may be saving in first cost. to sixty per cent. of the market price. of any of the four or five well-

have made good use of.

While unwilling to advise uncompromising severity in dealings with bankin business with-to all appearancedollar can possibly enjoy. No one bestanding in the business community.

monly passes as "shrewd financiering." tion against such competition as is now quarterly record of Messrs. Dun, Barlow & Co., which we publish in another by our business men

Practical Aspects of Steam Haulage.

We are aware that a great deal has been written upon this subject, but by far the greater number of those who ventured its discussion have claimed either too much for steam haulage or, on account of ignorance, have not claimed enough. In these times, when every item which goes to make up the manufacturer's expense is subject to most careful scrutiny, it is well worth while to consider whether steam cannot be applied more extensively in reducing the expenses around manufactories.

A great many furnaces, mines and manufactories are so located that large quantities of materials have to be hauled considerable distances by teams. Sometimes loads are heavy, and a number of horses or mules are needed for each load. In many instances steam could do the work a great deal better than animals, and at less cost. We do not say that, at present, the traction engine can be used successfully in all locations, but we know that its range of use is much wider, even in its present state, than most people are willing to believe. There are scarcely any towns where a steam road roller will not more than pay for itself in a very short time. If a large establishment buy a roller and put it at work, the advantages arising from good roads will be of no small value. When the engine has done all that kind of work that there may be, it can be changed into a traction engine by the substitution of different wheels. Some makers design their road rollers so as to be capable of being changed in this way. Traction engines will haul loads much cheaper than they can be moved by horses, while they are at the same time improving the roads over which they travel. They are best used with a obtain a load. These should be upon

ante-war prices is due to their comparative the performance of an act injurious to which honest and solvent merchants are Such an engine, according to the English scarcity near works, and to higher rates of trade, and therefore forbidden by the above compelled to pay for their goods. The method of rating, will be from 6 to 10 proceeds of these sales give him the cash horse-power, practically it will produce In the case of Stanton vs. Allen (5 Denio, with which to replenish when he needs to, about 50 horse-power. It is as easily and with cash he can also obtain more or handled as a team of horses and ruptcy has merely amounted to a repudia- propelling steam fire engine threading tary bankrupts could have paid in full if a and not going to a fire, the way was not other cases it would have been better for chances with the teams and trucks, dodging rupts been wound up, while in some in- little noticed by the horses, and it certainly stances we have no doubt the tempering made no more noise than a heavy truck of justice with mercy has given to honor- often does when moving rapidly. A steamer is really under better control than accepted by him. The note and bill were pair their shattered fortunes, which they a team, because it can be stopped in a shorter distance, can turn more quickly, and with greater accuracy, and in as little space as a team. With a train of wagons rupts, we cannot but think that there has it is, of course, not as easily worked in a been a great deal more of looseness in the small space, but it is as easily managed as settlement of failures during the past three a six horse team with half the load. An or four years than is creditable to the busi- engine of the size of which we speak, will ness community. We know of many in- take a load of about 12 tons up a grade of stances in which men who have compro- 1 in 12, and will work on still sharper price of an article without a correspond- mised on very easy terms have continued grades, with less loads. We have seen one of these machines, light, go up a grade of plenty of capital, and with advantages 1 in 3. Some engine builders fit their which no man who has maintained his traction engines with a small drum and dealer not being incited to bestow skill and credit and paid a hundred cents to the coil of wire rope, to which an anchor is attached; when engine and load is stalled lieved from fear of loss through the want lieves that these settlements were honor- the rope is unwound and attached to some ably made, but it would seem that a tainted | convenient point, and the engine-power of association, which name the price but reputation is of less consequence now a applied to the drum, and engine and load days than the possession of money, and if pulled up the hill, or out of the hollow. a man in business have money wherewith In this way, difficulties are overcome to buy, the fact that he has cheated one set which would otherwise be insurmountable. of creditors does not materially alter his In going up short and sharp inclines, the engine is sometimes run ahead up on to The creditors of voluntary bankrupts the level and attached to its load by the owe it to themselves and to their honest rope. It then has the advantage of workdebtors to see to it in every case that ing on the level while the load is on the bankruptcy is not made so easy as to hill. On very soft ground iron spurs or invite the kind of dishonesty which com- lugs are provided, which may be inserted in the tires, and thus a firm hold obtained. Offers of compromise need to be scru- If an elastic tire is used, the use of a simitinized very closely before they are ac- lar devise is not impossible, though we cepted. No honest merchant can compete have not heard of its being applied. Takwith rivals in the same line who, by the ling a liberal estimate of cost, we may exexpedient of easy bankruptcy, have got pect that the consumption of fuel will be their stocks at half price. Those who pay about twelve pounds per ton of load, per their debts have a right to demand protec- mile. It might reach double this under some circumstances. A steamer will take experienced at the hands of those who do about half a ton of coal for a day's work, not, but who have goods to sell which and from this down to 600 pounds-deyield them a handsome profit at prices far pending upon size and amount of load, below the cost of replacement. The grade, etc. One of our most experienced engineers, in estimating the cost of running one of these road steamers, placed the column, discusses this subject in a very daily cost at \$6, which is probably intelligent way, and will be found to con- at the present time an outside figure. tain some facts therewith connected which The cost of hauling 10 tons of mashould be carefully read and considered terial 10 miles per day is about \$10 less by steam-power than by horses; the cost by steam being a fraction less than \$12. The adhesion of a traction engine upon a dirt or macadamized road is very much greater than that of a locomotive upon rails, and hence, a very light engine can haul a comparatively heavy train, and with small power. Many of the engines built and used abroad

are capable not only of hauling heavy loads, but of maintaining a high rate of speed. One that ran for some time in France made 12 miles per hour with a large omnibus attached, and was, at the same time, capable of hauling very heavy loads and surmounting grades of 1 in 12 with a good load. Almost all of these machines are so arranged that, when not required for hauling, they can be used as stationary engines for threshing, sawing, or driving any kind of machinery, taking the place of the ordinary portable engine. The machine, therefore, need not be idle at any time. In the far West some trouble has been experienced with these engines because of the scarcity of water. A little care and forethought is, however, usually sufficient to overcome any such objections.

The practical application of the traction engine in this country is in places where a large tonnage is to be conveyed by common road, as from mine or factory to the railroad. The traction engine and wagons are much cheaper than to lay rails and operate by a locomotive, and are much better than horse-power. In establishments having large yards where heavy weights are to be moved, there is a form of traction engine especially desirable-the traveling crane. It is in fact, a traction engine with a crane attached. It can be moved and handled with the same facility as the ordinary engine, and can pick up and move over any ordinary ground loads an engine is much less expensive than it would be to lay tracks and set up a hand ing a coupling link, properly made, for place of an overhead crane with a great

We believe that these facts have an im-With this advantage he has been able to known and successful patterns. Its mediate and practical interest for a very tiff could not recover, because the con- sell at prices which, while netting him a weight for country roads and general large class of our readers. For some reato tract was void, providing, as it did, for handsome profit, are far below the prices service need not be above 5 or 6 tons. son, which it is difficult to understand,

from the employment of steam traction palaces. Grates of these patterns are sold engines have, as the rule, failed to take in considerable numbers, at prices ranging enough interest in them to examine their from fifty to fifteen hundred dollars, and merits and determine their utility; and even more. These grates, with their setwe are satisfied that all who have hauling tings, are extremely beautiful, and there to do on our country roads could not do seems to be a market for the best art better than to look into the subject at works of this kind without regard to cost. once. A road steamer can be had for Coal hods are made, which cost from fifty from \$3000 to \$5000. In constant service and with good care, the allowance for deterioration need not be greater than ten | sold to wealthy purchasers at prices which per cent. per annum, so that one of these steamers is good for ten years work, during which time it will do as much hauling as eight good horses, and cost for fuel, oil, engineer, steerman, wear and tear and interest on capital, not more than the cost of be charged for them would range from five maintaining four teams and four teamsters. In round numbers, one good ten ton road steamer will save about \$3500 per year, as highest artistic excellence in stove making, compared with the cost of horses capable by degrees. We already see some movement rendering equal service. A five ton in this direction which promises to be sussteamer, which will do the work of at tained. One of our manufacturers is now least two good teams, can be run at a total cost of not more than \$5.50 per day. These are figures which will bear examination, and in times like these, when In tiles, and vitreous enamels applied to economy makes the difference between profit and loss, they should receive the at- if judiciously employed, would enable us tention of all who have haulage over common roads to do.

Artistic Stoves.

that there is room in the market for something costly and elegant in the stove line. No doubt this belief, which is entertained by some of the most experienced and practical men in the trade with whom we have come in contact, is based upon a correct view of the requirements of the market. The stove is an institution not likely to be wholly superseded by the most ingenious of heating devices. In themselves considered, the best of them lack beauty, and are always out of place where planted in hand chasing, simultaneously with such the midst of elegant and tasteful objects. They are ugly in color, ugly in shape, and cannot be anything else than unsightly engarret as soon as they can be dispensed until their utility again pleads excuse for their presence in the fall. Probably we cannot cast iron into more attractive and beautiful forms than some of those now in the market-but are we limited to cast iron as a material for fine stoves? We have bronzes of all shades and colors, brass, polished steel and several durable metals capable of electro-deposition upon any other metal, when variety of color and texture are desired. Why should we not make stoves which would be objects of art, and at the same time just as useful, as stoves, as any cast in sand or shaped out of sheet metal? If we once call high art to our aid, we can combine beauty with utility-even

In this matter we are behind our ances tors, and even behind some of the nations of Europe who are, in turn, far behind us in other respects. In an edition of John Evelyn's diary, to which a correspondent calls our attention, we find an entry under date of November 27th, 1645, which reads as follows: "Went to visit honest and "learned Mr. Hartlib, an ingenious person "who has propagated many useful things "and arts. He told me of the castles "which they set for ornament on their "stoves in Germany, which are furnished "with small ordnance of silver, on battle-"ments, out of which they discharge ex-"cellent perfumes about the rooms, charg-"ing them with a little powder to set them on fire and dispense the smoke." The modern descendants of these æsthetic perfume dispensers still endeavor to make their stoves beautiful by covering them with tiles brightly colored and tastefully arranged. In the Scandinavian Peninsula a form of stove known as the 'Kakelung" is used, and travelers tell us that they are often covered with flowers, which thrive in the gentle heat radiated from the substantial top and sides of masonry and tiles. These rude attempts at elegance give us a suggestion as to what can be done with stoves. We should have neither ordnance, perfumes nor growing plants, but we might have shapely structures of bronze and ormolu, ornamented with medallions and capped with statuettes. There is no difficulty in making a stove an elegant object, but we cannot do it without bringing true art to bear upon the problem.

It being conceded that stoves can be made beautiful objects of art, the question arises, Would the manufacture of such stoves be profitable? Obviously not, if a general market were sought for them, for the great mass of consumers require cheap stoves. We believe, however, that there would be a demand for a limited production of really first-class stoves. During the past few years a business has grown up in the manufacture of ornamental low and half low grates, coal hods, fire sets, &c., which ten years ago

those who would derive the largest benefit would have been considered fit only for to one hundred and fifty dollars, and yet people buy them. Fire sets are made and would have furnished a complete house keeping outfit in our grandfather's days. Why, then, should we doubt that there would be a market for really elegant stoves, even supposing that the prices which must hundred to a thousand dollars?

It is probable that we shall approach the offering a stove ornamented with encaustic tiles set into the iron, and embellished with tasteful trimmings of polished brass. wrought iron, we have materials which, to make stoves far more attractive, and not necessarily very much more expensive. than the best class of those now sold by the thousand. Tiles are peculiarly appro-The idea is beginning to gain ground priate for stove ornamentation; they are made in every variety of color, design and size, and could be employed with great anvantage as a substitute for much of the useless mica now used. They can be made as beautiful as art can make them, and are capable of receiving the highest style of decoration. The only danger attending their use is that we should be tempted to go to excesses, and decorate beyond the limits of good taste. The next step beyond tiles would be bronze, electro-plate and improvement in interior construction as would permit the ashes and dust of the fire to be disposed of without inconvenience or cumbrances, to be relegated to cellar or detriment to carpets and furniture. These are things of the future, but probably of with in the spring, and kept out of sight the near future, and we should not be surprised if a long step in this direction were one of the results of our approaching Centennial.

Gilding on Exposed Ironwork.

Some of our foreign exchanges have been discussing the use of gilding upon exposed iron work. One of them takes the ground that the only result of gilding can be the destruction of the iron, gold standing at the head of the electro-negative bodies, and powerfully tending to promote the destruction of iron when the two are in contact in the presence of air and moisture. The gold size by which the gold is held in place, the paint beneath and the gold itself are claimed to be a mere network permitting the air and moisture to find their way to the surface of the iron beneath, and thus to establish a chemical action which destroys the iron. Theoretically this is very fine, but the case has not been fairly stated. The paint when first put on is not porous, and, until the action of the air decomposes them, they prevent air and moisture from coming in contact with the iron. As they decay they become porous and air and moisture find ready entrance. Gold, as tion used by the Hartford and New Haven commonly applied to iron, is put on overa Railroad, 62 lbs. to the yard, and weighs coating of gold size applied on top of the 2480 lbs., trimmed. Some 8 inches were paint. The iron in this manner gets a cut from the rail, which would have made much better protection than it could other- the rail as rolled nearly 121 feet. The rollwise have. The gold is next applied, and ing of the rail occupied just five minutes. serves to protect the paint beneath, and, if This is, if we remember rightly, the longwell put on and of fair thickness, will est steel rail of heavy section ever rolled. preserve the paint and size much longer This, with other rails of 97, 80, 60 and 30 than they would last if exposed to the feet, are intended for the Centennial. The weather. Now, as long as the gold pre- company will also show some very fine serves the paint, the gases or moisture in the air will have no opportunity to attack pieces, together with a number of twisted the iron, and so the galvanic action so rails. much dreaded will have no opportunity to begin. Gold leaf, as commonly used for such purposes, is very thin and usually full of holes; in time the air acts upon the paint through these, and so reaches the iron, when, of course, the action is rapid. But it is to be noted that the action of the air is greatly retarded, and a gilt surface of iron in this climate lasts much longer than one simply painted. We apprehend that more trouble has arisen from a poor quality of gold, which was easily destroyed by the weather, than from gilding done with real gold leaf of good thickness, well laid. The poor leaf yields to the action of the weather, the paint beneath is then attacked and the destruction of the iron rapidly follows, whether there is any galvanic action or not. We look upon gilding as a very desirable method of ornamentation, especially when well done, and think it just as safe as painting in any

A Pittsburgh gentleman is encouraged to believe that we are about to witness a sharp pression that smelters in England still hold

When the financial panic struck the disappearance at the ports of 25,952 tons is to Shenango Valley, it found 22 blast furnaces in blast, yielding daily, on an average, 30 tons each; or an annual yield of about 270,850 tons. These furnaces then had in stock about 100,000 tons, for any accumulated surplus. If they felt any heir iron for a considerable time at the same figures, but from time to time the stock has been reduced till it is now less than 10,000 tons of an inferior and unsalable quality. There are now only 9 furnaces out of the 23 in blast, producing annually, at the above rate, only 98,550 tons, or an annual decrease of 172,300 tons. Of the above 9 furnaces, the product of 4 is consumed in Sharon, contracted for, to be used in the manufacture of Bessemer steel, for a considerable time in advance." From these facts he draws the conclusion that a corner in pig iron is imminent, and that by May we shall see pig iron selling in Pittsburgh at from \$30 to \$35 per ton. We certainly hope that this very confident prediction will not be wholly disappointed, but if such a rise come we do not think it will be reached during May. The iron market | The charters effected on the Chilean coast up is now in such a condition that were speculation for a rise fairly started, the stock of desirable pig iron in the market would be quickly absorbed, and we should probably witness a sharp advance. But it would not be maintained. An advance to twentyfive or thirty dollars would start up so many furnaces that the market would heavy charters at Valparaiso during one fort break down under the over supply, and we should see a worse state of affairs than now exists. The recovery of the iron market from the depression which now characterizes it, cannot be permanent until we have a consumptive demand which bears some relation to our productive capacity. Purchases on speculative account may give prices a sudden flirt upward, but if this iron have to be thrown back on the market again to await a legitimate con sumptive demand, our advantage would be but brief, and a great deal of money spent in blowing in furnaces now idle would be worse than wasted.

We have received from Prof. Edwin J. Houston and Prof. Elihu Thompson, advanced sheets of a paper on the subject of Electrical Phenomena, being an account of a set of experiments to demonstrate the identity of the "Etheric Force" with induced electricity. The experiments seem to prove clearly the identity of the etheric force with inverse currents of induced electricity. The lack of polarity, which was the basis of the assumption that a new force existed, is explained by showing how two phases of the so-called force may neutralize each other. This amounts to demonstration that polarity may exist, although it is not manifest upon the first consideration of the phenomenon. The conclusion reached is that all the manifestations classed as "Etheric," are due solely to inverse currents of induced electricity.

On Saturday last the Edgar Thomson Steel Company, at Pittsburgh, rolled a steel rail of the extraordinary length of 120 feet 2 inches. The rail is of the sec-Bessemer forgings, rail sections and test

The Advance in Copper.

After a protracted stagnation which has last ed throughout the winter months, both in Europe and here, copper is at length giving signs of increased activity on both sides the cean. The statistics for 1875 are now to hand, and enable us to form a more correct judgment of the position of the metal.

England's imports and exports of copper and

Its	n	3	n:	a	U	11	£	k	c	t	U	ľ	6	8	nave	been	t	D	16	1	(0	1)	C)1	W	1	n	į,	£ :		
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187	1.																1.														4.6	
																1 187	9.													4		
187	3.					0				0					68,30	4 187	8.			0.1				0						. 8	4.9	ä
																9 187															18,00	
187	5.														77.42	7 187	Ъ.													. 4	19.2	ä

While the import of last year, therefor, exeeded the average of the five years by 4663 tons, the export fell short of such average by 2823. The excess of imports over exports in 1875 was 28,157, but the stock on hand January 1, 1876, was, nevertheless, reduced to 18,600 tons, against 16,895 the year before, and, consequently, showed an excess of but 2205

Many statisticians seem to be under the im-

per may exist at the rolling mills. But, however this may be, there is evidently no pressure which they had been offered about \$45 anxiety of the kind it would have shown itself After the panic commenced they held the market would have declined to a low figure, while, on the contrary, it has recently rather developed an upward turn, notwithstanding the absence of speculation and the curtailed demand for India. We may, therefore, fairly over exports is either absorbed or that it has found its way permanently into firm hands.

Meanwhile, the deliveries from stock in Eng. and and France since January 1 have been as steady as ever, being for the first two mouths of the year 9782 tons, against 9548 and 10,948 and the production of the other 5 is in 1875 and 1874; in February, alone, they were even larger than the year previous, being 4505 against 3673 and 5985.

Leaving out the 1626 tons afloat from Austra lia, advised by mail, and the 4000 tons Chilean charters, advised by cable, the stock in England and France on March 1 was but 30,033 tons, against 32,344 and 35,295 in 1875 and 1874, after an import since January 1 of 11,114, against 10,582 and 11,749.

The actual shipments of copper from Chili in 1875 were 46,700 tons, against 48,577 in 1874. to February 17 were but 5500 tons, against 6100 for the corresponding period of last year. Since then they have fluctuated a great deal, and are now ruled not only by the price of copper at London, but by the exchange which in its turn is again influenced by the fluctua tions in the value of silver. We shall, conse quently, have to be prepared for unusually night, and remarkably light ones another Many capitalists in Chili, if they cannot procure sufficient gold com, will prefer to hold copper rather than silver, and a good many anomalies of the kind may be looked for imparting additional unexpected features to the copper movement on the West Coast, and causing the London market during the remainder of the year to exhibit a great deal more restlessness than we have witnessed there for six months past.

French consumers have, in the meantime, per severed in their policy lately adopted of steering independently of the London supply. After contracting for a couple of thousand tons Lake Superior copper in this market, a couple of months ago, the cable from Valparaiso informs us that early in March they have drawn as much from the West Coast. These are extensive operations, and lead us to suppose that a good deal of the copper thus secured is for government purposes, be it for gun material or cartridges.

From what precedes, the conclusion may be safely arrived at, we believe, that an active campaign is drawing near in Europe, whether the requirements of copper be for armament or industrial purposes. After a while speculation may be superadded, the price of Chili bars being moderate at the present moment

The following has been the course of value for the past twelve months:

March	1,	187	5.						£82	Sept.	1.	1875	 £83		
April	1,				,				-80	Oct.	1.	6 h	 82		
May	1.	66							83	Nov.	1.	66	 82.	10.	1
June	1.	6.6							88	Dec.	1.	6.6	 81		
July	1,	65							82	Jan.	1.	1876	 81.	10	ı
Aug.	1,	44		9		0	0		79	Feb.	1,	64	 81	/	

On the 1st instant bars stood £76.

Whether we have a dull or an active season before us, our own market will be greatly influenced by the course of prices in Europe. The quantity taken for export thus far this year, not only for Europe, but even for China, is quite a respectable one, and at a price our copper is taken in preference over any other, if we except Japanese, but Japan only produces 3000 tons annually, and India takes it exclusively.

Nor is the position here an unpromising one from a domestic point of view. The amount on hand in port is much reduced, manufacturers are known to carry light stocks, and the least serious revival in the demand will drive them into the market. The improvement which has been brought about here by degrees may, therefore, assume larger proportions till navigation at the lakes opens, and the new copper makes its appearance in June. Some manufacturers have deemed it prudent even now to secure some 5,000,000 pounds Lake copper, to be taken from June to August,

Some Remarks about Petroleum.

The glory of Pittsburgh as a point for refining petroleum is departing. Those familiar with the early history of this product, and gray hairs are not required, will remember the im portance that Pittsburgh at once assumed, and the strange and busy scenes in and around the Iron City. The Oil Regions had been a terra ignota previous to Drake's successful venture in Venango county. It had no railroads, and but few highways, the supplies for the settlers being poled up the Alleghany in flat boats, while the only commodities returned were lumber and a few tons of pig iron. Pittsburgh was the great market for this region.

Previous to Drake's discovery of oil, Mr. Samuel M. Kier, the pioneer in the refining of petroleum, had established a small refinery at Pittsburgh, of some 225 bbls. weekly capacity, drawing his supply from an old salt well near Tarentum, Penn., and this, in 1857, was more than sufficient for the refining of all the crude

But with Drake's success came a change, four times,

advance in Western pig iron. He says: large stocks on their works, and that thus the Property worthless before sold at enormous prices. Wells were sunk, and the Oil Rebe explained. This may to some extent be the gion became a scene of activity that has had no truth, or a large amount of manufactured copparallel in the history of the country, with the possible exception of the early days of California. Though railroads were projected, it remanifested on their part to rid themselves of quired time to build them, and in the meantime Pittsburgh was the only market for the new product that could be reached at a reason per ton, but asked from \$50 to \$55. in the shape of larger offerings at London, and able cost for transportation, and the oil found its way there in bulk in boats and barges. The cheapness of fuel and the facilities for shipment by rail and river, combined with the necessity to make Pittsburgh the great refining point for years. At the close of 1857, the year assume that the bulk of this excess of imports oil was "struck," Pittsburgh had three refinerics, with a weekly capacity of 700 bbls. Three more were erected in 1858, two of which had a capacity of 1000 bbls. each, and by 1865 eightyfive refineries had been erected. In 1867, fiftyeight refineries were in existence, with an aggregate weekly capacity of 31,500 bbls., with an invested capital of \$7,700,000 in buildings and machinery, and \$5,500,000 more in tanks, barges, etc.

> From this time Pittsburgh has been losing its position, and Cleveland has taken her place. Why this change has taken place it would be difficult to state positively, though there would be little hazard in saying that it was not due to any superior natural facilities the latter bas over the former. Its rail facilities are equally good with those of Pittsburgh, but in all other espectait is at a disadvantage. It is further both from the crude and from the place of de mand for the refined. Certain suits, which have lately been instituted at Cleveland, would indicate that there is some truth in the assertion of Pittsburgh refiners that the railroad officials are partners in some Cleveland refineries and give them favors.

However this may be, Cleveland is endeavoring to buy out Pittsburgh and close her refineries. The past week three refineries have been sold, viz: The "Aladdin," "Vesta," and 'Cosmos," and will probably be closed. Over this state of affairs the Pittsburgh papers grow frantic. The Chronicle says:

"The twenty-one refineries of this city, whose nstruction cost over \$2,000,000, are comparatively idle and worthless, because their owners are not "in the ring," and without the magic pole of Rockafeller et al, of the Standard combination, Cleveland. Having brought our refiners to this state, the Cleveland worthles come forward and make cash offers to Pittsburgh refiners-not only for their stills and buildings, but for their business-a gigantic parallel to the case of Faust vs. Mephistopheles, where a soul was sold, or that of Esau vs. Jacob, where a mess of pottage was the object desired.

"Within the past few days, the authorized and appointed agent of the Standard Clique of Cleveland, has purchased one Pittsburgh refinery and is negotiating for two more. The refinery sold, is the "Aladdin," and the price paid was something over \$20,000 cash.

"Negotiations are pending for the purchase of the "Vesta" and "Cosmos" from their

"These two works have a capacity of 1000 parrels refined oil per day, or say 6000 barrels per week. At a manufacturing profit of twenty cents per barrel, would earn \$1200 per week, except for the combination against Pittsburgh. The price offered by the Rockafeller agent was \$75,000, cash; the original cost of the works being \$300,000. But the conditions attached to these purchases form the man feature. The seller must bind himself not to enter the refining business again, in opposition to the ring.

"In the words of a veteran refiner to-day, We have been in the business for a de cade, have built it up, and now are asked to sign away our rights to that which is our means of support.' "

The following notes on Japanese iron are from Le Constructeur: The blast furnaces of Japan are small, and of very simple construction, although built on the same principle as those of Europe. The walls are built of fireproof clay, mixed with a few stones. The blast furnaces are round, and have an opening at the side, closed by a band of clay; opposite are two other openings, through which comes a strong current of air, driven into the furnace by Chinese beliows worked by men. Before pouring the ore into the furnace they mix it with coal, and subject it to a previous calcination, so as to get rid of its carbonic acid and sulphur. The Japanese do not understand puddling as practiced in the West; but the principle of their procedure is exactly the same. The fused iron, mixed with a little sand and pieces of iron, is again fused with charcoal in a second furnace, where it is left to cool for several days, until the whole mass has the appearance of fluid. The Japanese method of making steel is quite different from that practiced in Europe. They mix a certain quantity of iron in pigs and iron in bars, cover the mixture with borax, and melt the whole for a week in a small fireproof crucible. The borax serves to dissolve the impurities in the dross. When the metal is separated from the dross, which floats on the surface, and cooled, it is hammered hard, and alternately plunged into water or oil, after which it is cemented and tempered. The mode of cementing is as follows: The steel, on coming from beneath the hammer, is covered with mixture of clay, cinders, marl, and charcoal powder. When this plaster is dry, the whole is subjected to a red heat, and the steel is afterward cooled very slowly in warm water, which is allowed to become tepid. Steel thus obtained is not very supple, but extremely bard because it is not properly tempered or completely freed from its impurities:-It would not do for making watch springs, but is used by the Japanese for swords and sabers, which are tempered as many as eleven times, and knives which are tempered FACTORY, Fairhaven, Mass. AMERICAN TACK CO., SALESROOM, 117 Chambers St., N. Y.

Upholstery, Gimp, Brush, Card, Pail and Cheese Box Tacks; Leathered, Tinned and Iron Carpet Tacks; Bright and Blued Finishing Nails; Cigar Box and Chair Nails; Trunk and Clout Nails; Brads, Patent Brads, Copper Tacks and Nails; Iron, Zinc, Steel and Copper Shoe Nails; Polished 2d and 3d Fine Nails; Boofing and Slating Nails; Boofing Tacks, Tinned Tacks and Nails of

MANILA Water Pails.



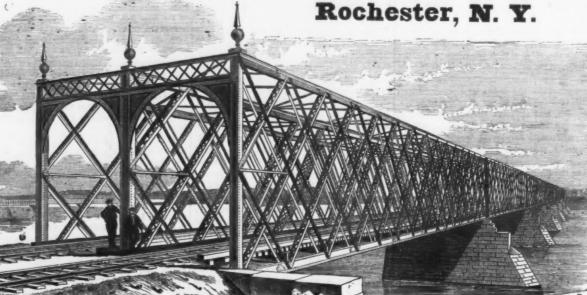
W. F. HYATT, Manufacturers' Agent, 54 BEEKMAN ST., - - NEW YORK

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JOHN MAXHEIMER,

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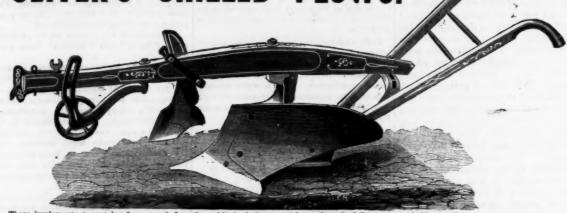
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1506 were sold in the season of 1871. 3049 1872.

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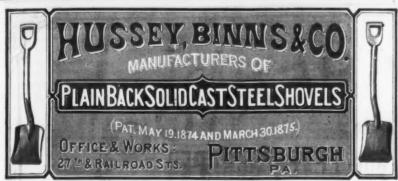
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1868



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The Business Situation.

Messrs. Dun, Barlow & Co. send us the folwing, which will be read with great interest. New York, April 14th, 1876. The following tables show the number of

failures which have occurred throughout the

States and Ter-	let Qu	ar. in 1876.	1st Qu	iar. in 1875.
ritories.	No. of Fail,	Am't of Liabilt'es,	No. of Fail.	Am't of Liabilt'es.
Alabama	22	\$256,800	15	\$366,000
Arizona	8	00 200	****	07 000
Arkansas		97,700	2	27,000
Cahfornia Colorado	58	1,201,398	61	675,971
Connecticut	62	50,000 1,782,394	41	907 761
Dakota	3	67,000	9.1	297,761
Delaware	- 6	85,000	5	65,000
District of Col.	1	4,477	5	28,824
Florida	5	30,000	4	160,000
Georgia	68	2,080,276	40	1,037,300
Idaho	1	3,500	40	250013000
Illinois	132	2,962,500	96	2,385,018
City Chicago.	5.9	8,097,200	00	94.10.040.10
Indiana	92	1,822,521	84	1,661.349
Iowa	98	1,180,080	44	376,265
Kansas	19	171,500	19	83,300
Kentucky	68	1,218,953	38	1,196,000
Louisiana	12	553,525	6	305,831
Maine	40	669,450		
Maryland	44	703,492	44	780,485
Massachusetts	154	4,022,560	113	5,514,000
City Boston	114	6,157,000	****	
Michigan	159	8,444,839	61	511,041
Minnesota	44	263,477	38	250,000
Mississippi	80	311,046	17	418,450
Missouri	35	658,200	65	1,199,550
City St. Louis.	22	580,933	****	****
Montana	2	55,000		400 000
Nebraska	8	51,000	16	120,000
Nevada	5	32,000	2220	****
N. Hampshire	18	217,500	****	01 250
New Jersey	58 282	657,747	11	81,758
New York City New York	313	6,035,968 9,513,548	152	2,694,562 8,490,500
North Carolina.	35	482,585	16	123,000
Ohio	187	2,113,005	78	1,187,155
City Cincin'ti.	28	780,809	10	1,101,100
Oregon	6	25,300	***	****
Pennsylvania	139	8,125,171	135	4,927,606
City of Phila	34	1,322,220	AUG	110011000
Rhode Island	36	982,191	21	476,394
South Carolina	40	725,858	61	969,236
Tennessee		140,000	23	143,765
Territories		****	32	546,702
Texas	44	685,896	67	660,100
Utah	1	6,000		4111
Vermont	23	487,000	7	31,200
Va. & West Va.	54	2,121,665	47	642,765
Washg'n Teri'y.	8	162,664		****
Wisconsin	92	1,039,719	5/7	419,384
Wyoming	1	87,000		****
Total	2,806	\$61,644,156	1,783	\$38,878,222
Do, of Canada.	477	\$7,418,030	396	\$4,141,340
	4			1

These figures show an increase which, though not unexpected, is larger than was anticipated. Comparing the figures with those of the corresponding quarter in 1875, the result is very disheartening, revealing a very great increase in together the four quarters of last year, and comparing the quarter just closed with each, a clearer view is had, as follows:

2,806 First quarter, 1876. \$64,000,000 First quarter, 1875... Second quarter, 1875... Third quarter, 1875... Fourth quarter, 1875 As compared with first quarter, 1876: No. of Failures, Inc. 1,073 Inc. 1,225 Inc. 1,035 Inc. 401

First quarter, 1875.... Second quarter, 1875.... Third quarter, 1875.... Fourth quarter, 1875.... Inc. \$26,000,000 Inc. 31,000,000 Inc. 10,000,000 Dec. 6,000,000 The figures for the first quarter of 1876, compared with those of 1875, do not reveal a difference so startling as when compared with those of the first quarter of 1875. There is a positive decrease in the amount of liabilities, and the whole of the above figures show a gradual reduction in the average amount of liabilities in proportion to the increased number of fail-

The figures which we present herewith do not return of a prosperous condition is any nearer, except in the passage of time, than a year ago. The business of the country, in every department, continues to be restricted to the narrowbeen slight indeed. It is, therefore, not a matexpenditures of the war induced, and entirely applicable to wholesale purchases: which a vastly increased currency caused to be perpetuated, could not take place without stimulating trade unduly, and causing such large numbers to enter commercial pursuits as to crowd all avenues of business with more than an adequate number even when trade wes at its best. But now that there is but little buildness to be done beyond supplying the restricted wants of the people, the excessive number in trade must be lessened, and in the struggle for existence the doctrine of the survival of the fittest receives a fresh illustration. It is to be deplored that the large army of traders, whose services are no longer required, cannot retire from the field, except through failure. The voluntary withdrawals from business are in far less proportion than they should be, in view of the great reduction in its extent.

Although failures are generally regarded as the most marked indication of a bad condition of trade, it appears as though this is the only process by which the number engaged can be lessened, so that those who remain may make profit enough to yield a living. It seems very be urged as an indication of possible improvement in the condition of business; yet, even from this process, very little hope can be derived, owing to the facility with which compromises are effected. The very men who have sis of decline in values, the figures are signifi-

only who make money in these hard times. By merous staples entering into the every day purchasing their assets from their creditors at wants of the people. How far the same tendency a low figure, a sufficient capital is not unfre- is shown in real estate, in rents, freights, and quently yielded to continue in business, but other essential interests, it is needless to enualways to the detriment of those who are en-deavoring to discharge their obligations in full. In this view it is a national calamity that expenses in 1876 as compared with 1873? It United States and Canada for the first quarter of the current year, together with the amount. The wise and liberal principle which this law is intended to maintain is abused by the mistakes same relative high percentage that they did in In its enactment, and the facility which it better times; and, indeed, it looks as if a reaffords to the debtor, by judicious manipulation, to dictate terms to the creditor, who thereby loses control of his own property, and a disposition is not infrequently made of it, entirely foreign to his wishes and opposed to his convictions. The many considerations which cause creditors to yield to the solicitations of debtors for a compromise of their indebtedness are sufficiently strong to keep the ranks full of those who have failed to succeed; but encouragement to fraudulent failures, and well defined attempts to make money by this class of misfortunes, were certainly never contemplated by the law. Such, however, is the result, and, added to all the limitations and difficulties of business of the present time, is this misfortune, that while failures are numerous, the excessive number engaged in a restricted trade lessen slowly, fraud is encouraged, and the chances of success for upright and capable for their staples, indebtedness is gradually bemerchants are diminished by the failure and subsequent settlement at a trifling dividend of the weak in capacity and the poor in capital. As to the consequences of liberal settlements upon the parties themselves most benefited, we cannot do better than give insertion to the fol- a new start will be made which, though not ac lowing sensible remarks from a recent number of the New York Shoe and Leather Reporter : "A ready and indiscriminate acceptance of

any proposition of compromise is a dangerous expedient. The dread of failure and of the gloomy consequences it involves, ought to be one of the most effectual checks against improvidence and recklessness in trade. With all the safeguards that can be interposed, the propensity to overtrade and speculate brings about an annual harvest of suspensions. But if it get to be understood that when a man stops payment he has only to settle up as best he may and go on again, the dismay which the thought of bankruptey occasions will soon become merely sentimental. And the comparative ease with which he has passed through the trying ordeal encourages him to incur fresh hazards, which are very likely to bring him to the same fate once more. The second collapse is much less mortifying than the first, and, if after that anything go wrong, why, the internumber and amount of failures; but grouping ruption gets to be quite a matter of course, and is endured with positive complacency."

Prominence has been given to the foregoing subject on this occasion, because of its growing influence on the figures of failures which it seems our province to furnish. That these figures will continue to be large, and that they will increase, cannot be doubted if encouragement is afforded to failure by a ready acquiescence in the demand of every debtor, and unless some decided stand is taken by the merchants themselves to lessen the number in business, by refusing to continue those therein who by their own confession have shown themselves

Notwithstanding that all the ability of this great nation of inventors has for the past three years been intent upon the discovery of some plan whereby trade can be restored to a normal conditiou, no theory has yet been found that exactly fits the case or accomplishes the result. The progress toward a prosperous condition, which at first was thought might be rapid, it is now generally considered must be exceedingly gradual. Still further, it is a growgive much encouragement to the belief that the ing conviction that a better and safer condition of trade can only be brought about by a reduction of values to their lowest possible point, and hence there are those who hail as a good sign every quotation of lower prices indicating est limits. Without a corresponding reduction a possibility of economy in living, and a return in expenses, and in the face of declining prices to rates for all staples such as prevail in other a possibility of economy in living, and a return of all staples, the possibilities of profit have quarters of the globe. How far a restricted currency, and an approach to specie payments, ter of surprise that so many have succumbed will contribute to this result, it is needless to failure. There are also eight other furuaces, to the pressure of the times. The wonder rather is, that with all the discouragement sirable consummation the tendency to lower rather is, that with all the discouragement sirable consummation the tendency to lower rather is. which in the past two or three years have been experienced, so many survive in a condition of ful sign of the times. That this tendency is apparent stability. When all the circumstan- most marked there is no denying, but in order ces are considered it should not create to show its extent, as compared with the prices We particularly invite the attention surprise that the statistics of failures show a prevailing in 1873, we have grouped together marked increase in seasons like the present. some figures which may be found interesting A condition of expansion, such as the large It must be borne in miad that these figures are

entitely approach	60 11 22 0		ber cuence	0.0
	April, 1	878.	April, 1	876.
Flour-Superfine	14-94 to	\$5.33	\$4.00 to :	£4.65
Southern	7:84 to	9.10	5 to to	7:10
Extra State	6.16 to	6.61	5.10 to	5.40
ButterNew State,	0 20 00	- 02		
% firking	'43 to	*48	'38 to	*40
Welsh tubs	'40 to	-43	'37 to	*38
	40 60	-	01 10	90
Fine fresh State	'45 to	'47	'40 to	*42
pails		1636	1836 to	
Cheese-Fine Fact'y		-50		
Teas-Green, per 1b.,	0.0	45	0.0	35
Japan, per lb	**	.40	* *	.mo
Coffee & Sugar, show				
very little change.				
Dry Goods-Stand'rd				
sheetings, W yard		-15	0.6	.09
64x64 Print cloths.	0.0	*07%	0.0	'04
4 yard Sheetings.		10	4.0	10636
N. Y. Mills Muslins	0.0	.10		1236
Fruit of the Loom				
Muslins	4.2	1636	0.0	*10%
LumberGood, per				
1000 ft	8	60-00	8	46:00
Selects		50-00		86.00
Box		30.00		20.00
Common Box		25:00		13:00
Ottawa, 12-inch		35:00	1	25.00
Metals Tin Plates,				
per box		14:00		8.20
Block Tin, per lb		-37		.400
Russia Sheet Iron		*18		*14%
American "		*06%		0334
Common Bar Iron,		-		
per 100 lbs		8:90		2.10
Refined		4:44		2.30
Horse Shoe		5:45		3.80
Band Iron		5.20		2.80
Best Tool Steel		18.00		16.00
Railroad Iron		8.20		2.00
Steel Rails (Fish		0 40		~ 00
	1	2:90		9:20
Bar Rails)	1			
While this is by t	o meat	BB R CC	mplete a	ynop-

demonstrated their lack of success are those cant as showing the marked reduction in nu- vided annually. Mr. A. Wilhelm is the manager

merste. Yet, in the face of all this decline, what is the real percentage of decrease in living certainly ought to be much more than it is. The profits of retailers continue to bear the stricted trade were atoned for by higher profits, as it is certain that goods are bought at wholesale much cheaper, and sold at retail almost as high as in 1873. All this must, however, right itself in time. Competition and the lessened expenses of retailers themselves will accomplish the result of adjusting the cost of living to a proportionate cost of production. When this is reached, an important step toward a healthier condition of things will have been at-

There is not much in the present outlook to encourage the hope of immediate revival of business. The spring trade generally has been very disappointing, both in extent and profit, and the backwardness of the season retards a demand for goods which it was thought might follow the regular season's purchases. There is, however, a steady realization from producers ing reduced, and economy is everywhere the feature of the hour. There is a general conviction that bottom has been touched, and that with the permanent opening of navigation and the necessary activities of the Centennial year, complishing great results within a short time, will yet be hopeful in indications for the fu-

The Cornwall Iron Hills.

About six miles south of Lebanon are the famous Cornwall iron hills. Surrounding this vast deposit of iron ore is the largest landed estate in Pennsylvania, if not the largest east of the Alleghenies. It is made up of the Cornwall and Speedwell farms, containing 22,000 acres, and is owned by the heirs of Robert W. and Wm. Coleman. It is reached from Lebanon over a fine, wide road, hard and level. They bave been taking thousands upon thousands of tons from them yearly for the past quarter of a century, and as yet they are not off the surface. All the ore mining is done by daylight. They have no shafts, and there is no underground work. They have railroad tracks all over the hills, and the cars are filled with the mineral scooped from the surface.

The hills are known as Big Hill, Middle Hill and Grassy Hill. Big Hill is over 400 feet high, and has a base covering more than 40 acres. It is shaped like a cone, and a spiral railway winds its way around it. Middle Hill is 200 yards from Big Hill. It is about 200 feet high, and covers about 35 acres. Years of constant min; ing have made little impression against its rugged sides. Ore was taken from it during the American Revolution to furnish cannon and shot, of which specimens are held at Cornwall to-day as relics. Grassy Hill lies southwest of Middle Hill, at a distance of 100 yards. It has been worked for more than 20 years, is nearly 150 feet high, and covers about 30 acres. These vast deposits were purchased with the rest of the estate many years ago for about \$675. Here, too, are situated the magnificent summer residences of the owners of the estate, who live in regal splendor.

The ore is at present mined by the Cornwall Ore Bank Company, with J. Taylor Boyd, a practical miner, as superintendent. The metal is a magnetic oxide, containing a large proportion of iron pyrites, which, under atmospheric iofluence, changes from the sulphuret of iron into a sulphate soluble in water, and is washed away by the rain. The nearer it is to the surface the freer it is from sulphur. Near by is the "Bird-Coleman" Furnace. It is of stone and iron, and cost about \$350,000. It has a capacity of about 250 tons pig metal per week, It was completed on the day of Jay Cooke's west, connecting Harrisburg and Reading. Twelve years after ground was first broken, the receipts of the road paid for its construction, equipment, annual running expenses and rapairs. It is purely a private freight road buil; by the Colemans. Copper is also found on the estate, and is sent to the United States Mint be converted into coin.

The Cornwall farm contains 15,000 acres is not divided into distinct tracts, but is on ; continuous piece of land, of which 105% acris are taken up by the ore hills. The rest is in high state of cultivation. There are fifty miles of road on it in constant use. The entire estan is under the control of one overseer and six assistants. The tenantry number about 0.11 thousand men, women and children, who li '3 here happy and contented. The stranger is minded by their appearance of the estates and tenantries of Great Britian. The workmen and paid in cash every month. They can purchas; at the store of the estate much cheaper than the city shops. They buy their flour, corn, &s. at greatly reduced prices at the large mill the estate. They have a fine church, post office and school, as well as other necessary build. ings. The soil is rich and has immense deposits of limestone. There is a brickyard and a larg? sandstone quarry. They have their own carpenters, blacksmiths, and other artisans, an l they will shortly weave their own cloth from the wool which they raise.

The estate is a tenancy in common, owned b; about ninety-six persons, who live in New York Paris, London, Phildelphia and other largy cities, and at Cornwall The profits are di-

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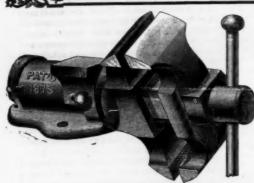
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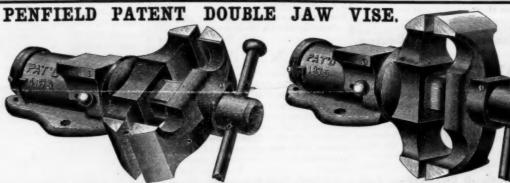
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Tork Co., PA.

New Patents.

We take the following abstract of new patents, recently issued, from the official record : VISE.

To James Wright, Rockland, Me .- March 7 .-The connecting bar at the base of the vise

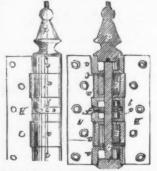


The griping plates have a limited sliding movement, and adjust themselves upon the article

1. In a vise, the combinations of the jaws A B, and loosely articulated bar C.

2. The combination of the griping plates or blocks D, having a limited sliding movement in their beds, with the jaws A B, and loosely articulated bar C.

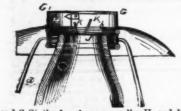
SPRING HINGE. To Geo. D. Carleton, New Britain, Conn. March 7 .-- An adjusting plate being secured to and rotating with the pintle, one of the



knuckles being transversely slotted to receive this adjusting plate, while all the knuckles are chambered or recessed to carry and conceal the springs.

The adjusting plate F, secured to the pintle D, and rotating therewith, the knuckle a'', slotted transversely to receive said adjusting plate, the pin g, leaf A, having chambered knuckles aa, leaf B, and the springs E E, surrounding the pintle and within said chambered knuckles. LANTERN.

To Theo. B. Osborne, New York, N. Y .- March 7.-1. The combination of the bisected top



band G G', the female screw collar H, and disk

J, with thumb pieces K K.

2. The movable part G of the bisected top band of a lantern body, connected by one or more wires, d, with the horizontal wire b of the surrounding frame.

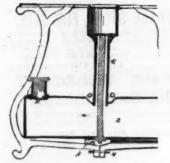
PIPE WRENCH.

To Isaiah Cressey, Gloucester, Mass.-March 7.-1. The serrations d on the shank, in combination with those be of the hook jaw.

2. The shank A, provided with the screw a a and the hook jaw E, in combination with the nut C, and with the slide F. separate from the said nut, and with the movable jaw G, pivoted or hinged to the slide, and provided with the spring I, or such spring and the handle H.

VAPOR BURNING STOVE. -1. A recess formed in the top of the reser-

voir of a vapor burning stove. nner E. attached to a

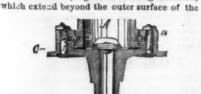


tion with an elastic metal reservoir of a vapor

3. A cam F, in combination with the stove bottom and legs. 4. The combination of the rings H and 1,

legs G and reservoir A. ATTACHING PUMP BARRELS TO THEIR BASES.

To Geo. D. Carleton, New Britain, Conn .-Mar. 7.-In a groove surrounding the lower end of the barrel, segments of a ring are fitted.



barrel. A ring clamp, having been first passed

ing the segments and the barrel firmly thereto. The combination of the barrel A, detachable lugs b b, annular clamp B and base C.

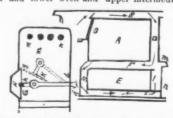
RANGE.

To T. J. March, Limerick Station, Pa.-Mar. -The vertical side flue has a dampered connection with the horizontal flue between the combustion enter the vertical side flue below the bottom oven.

1. In a range, the combination, with its up per and lower ovens, of an intermediate flue F and damper G.

2. In a range, the combination, with the upper and lower ovens, of the flues B, D, F, I, J and M and damper G.

8. In a range, the combination, with an upper and lower oven and upper intermediate

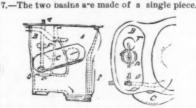


and lower distributing flues, of an exit flue formed on the side of the range, having openings communicating with the intermediate and lower flue, and a damper located in the intermediate flue, and adapted to govern an opening in the exit fluc.

4. In a range, the combination of the perforated plates m and n with the lower oven E.

5. The combination of the jointed rods or levers h i with the swinging damper G and the stop k.

6. The combination, with the flues J and H. of the flue plates m and n. WATER CLOSET. To Edward Pearson, London, England .- Mar.



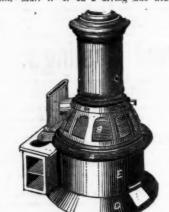
The fecal matter passes from the main basin to the side basin, the latter having the valve, cock and float mechanism controlling the water supply.

1. The molded basin, formed of a single piece, and having the main basin A, side basin B, connecting passage C, the valve seat b, lower chamber and discharge opening, and also the overflow pipe 8.

2. The combination of the side basin B, having the valve seat b, with the valve D, float F and tap Q.

BASE BURNING STOVE FOR HEATING AND COOKING .- RE-ISSUED.

To John V. B. Carter and Jas. Dwyer, Detroit, Mich .- Mar. 7 .- 1. In a diving flue heating



To Thomas B. Jeffrey and Frank stove, with its ascending flue incased within the Rosengren, Chicago, Ill.—Mar. 7. walls of the stove, and on the rear thereof, the combination of a culinary attachment, supported at the rear end upon the base, and between said base and the ring which forms the base of the combustion chamber proper, and adapted to be heated by the products of combustion in their passage from the combustion chamber to the exit.

2. In a diving flue cylindrical shaped heating stove, and in combination therewith, a culinary attachment, adapted to be placed upon the rear of said stove, with openings communicating with corresponding openings in the walls of the

3. In a diving flue heating stove, a low down double walled oven or culmary attachment, located in rear of the fire pot, with its upper and under surfaces in the same planes, or nearly in the same planes, wi'h the top and bottom of said fire pot, in combination with a rear incased ascending flue.

4. In combination with a heating stove having revertible and base flues, a culinary attachment placed directly against the rear flucs of said stove, so that the inner wall or front of said culinary attachment is adapted to be heated by thus formed. This was in 1874, but in practice direct radiation from the fire pot, while the Mr. Gamgee considerably modified this notion other walls of said attachment are heated by the products of combustion in their passage from the hase to the exit.

5. In a heating stove, and in combination with suitable openings, to allow the products of combustion to be directed from the flues of stove.

PROCESS OF ORNAMENTING METAL AND OTHER

PLATES .- RE-ISSUED.

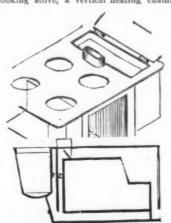
both as a tacking and also to produce and dissistanting from the refrigerator into a tank, the ing in force. allows the movable jaw a vertical movement. ovens. When this is closed, the products of play the gold or other metallic effects through bottom of which is about 10 ft. above the level transparent colors employed.

colored imitation grounds, on which the tation through about 55 ft. of pipe to the rink, pictures, designs, show tablets, or letterings and having passed through the tubes embedded have the appearance of lying, but which really in the ice, returns by gravitation to the refrigare only printed color made to fit or register erator to be pumped gently up again into in between and around various portions of the tank. Before, however, the solution have water courses in Pennsylvania, in Wiscondesign, but which are transferred with the de- enters the main refrigerator it passes through sign from the transfer paper to the metal, &c., and answering the purpose of a ground.

embossing the portion baving the gold, silver, or other metallic effects.

4. The described process for producing a border or imitation frame to the transferred printed work, such border being the plain metal or other material uncovered, uncoated and bare, or only covered with transparent color, lacquer, or varnish, instead of the opaque color, bronze, paint, metal leaf, paint, or gilding heretofore employed.

COOKING STOVE-RE-ISSUED. To E. Bussey, Troy, N. Y.-March 7.-1. In a cooking stove, a vertical heating chamber



placed back of the exit pipe and vertical flues and inclosed against the front wall of a water reservoir by means of an intermediate vertical plate located between the rear oven wall and the front wall of the reservoir, with the vertical intermediate plate forming the rear wall of the flues opposite the reservoir.

2. In a cooking stove, a vertical heating chamber placed back of the exit pipe and rear vertical flues, in combination with the ascending flue, with the latter in communication with the chamber.

3. In a cooking stove, the vertical plates N N, or their equivalents, to divide off the spaces opposite to the back of the descending flues, and between the rear wall of the descending flues and the reservoir front wall, with openings formed in the rear walls of the flues, connecting the flues with the spaces.

4. An intermediate plate between the reser voir and oven, with openings in the same for ingress or egress for gases of combustion.

The following design, bearing date March 7, 1876, was duly patented in the United States

91:28.-Ranges.-Samuel H. Ransom, Albany, N. Y., assignor, to S. H. Ransom & Co., same place. Applications filed December 28, 1875. Term of patent 7 years.

The following trade mark was also registered on the same date:

3494.-Cooking Ranges.-Rathbone, Surd & Co., Albany, N. Y. Application filed February 21, 1876-" word 'Delmonico."

Skating and Ice Skating Rinks.

England has developed an unprecedented assion for skating within the past few years. ler soft climate, however, has compelled the use of the roller or parlor skate, and necessitated the building of numberless skating rinks. Asphalt or concrete floors, though very fair substitutes for ice, are not altogether satisfactory for roller skates; will not allow the same freedom of motion as ice, hence great efforts have been made to secure a surface of artificial ice fit to ska'e upon. Mr. John Gamgee, who has been for some years paying attention to this subject, has succeeded in actually producing such a surface, and keeping it in working order for a considerable length of time. The Engineer, after giving a long and very interesting account of what has been done in this direction, gives some account, of the present experiment which has been made at Chelsea.

In designing this rink, Mr. Gamgee originally proposed to have a floor of iron plates carried on transverse girders of the same metal, which were laid on wood bedded on concrete, the refrigerating liquid flowing through the spaces of laying a series of cast iron pipes of rectangular section connected at the ends on a bed of concrete, and grouting them with cement. In the case of the present rink the concrete bed is 24 ft. therewith, a culinary attachment provided long by 16 ft, wide, giving only a comparatively small rink of about 43 square yards area; but then it is an experimental rink. Around the a revertible flue heating stove into the inclosed concrete is a raised ledge forming a trough conflue space surrounding the oven, placed be- taining water to be congealed, which is about tween the ring which forms the base of the 2 in. deep, and which surrounds three sides of on to the barrel by the lower end, is now brought down and bolted to the base, clamp March 7.—1. The process of ornamenting me'in are themselves liable to congelation if much cheaper than in the East, while their only 1251. The annual average was 1585.

the open spaces of the design, and through the of the machinery house in which it is placed, and where it is kept at the required tempera-2. The process of producing white or other ture. From the tank the liquid flows by gravi-

The freezing apparatus is an ether machine, the ether being exhausted from the refrigerator, fields, is great and unquestioned. The connd forced into the condenser by an air pump driven by a steam engine. About four gallons of ether is the quantity stated by Mr. Gamgee to be in use, while he affirms that it requires but very infrequent renewal, and then only in those who have interests at stake in the prosvery small quantities. The refrigerator is a perity of New England, while with a large class copper box about 5 ft. square, fitted with a of manufacturers, as we have said, the feeling series of vertical tubes, and placed in a wooden tank. The glycerine mixture surrounds the Yet, if we look a little below the surface, we tank. The glycerine mixture surrounds the copper box and passes through the tabes, the ether, of course, being inside. The condenser circumstances to upset our equilibrium. Under is about the same size as the refrigerator, and is similarly constructed, except that the tubes are placed horizontally and are double. The tries which result from their union, to transcondensing water circulates through the inner tubes and outside the outer tubes, whilst the ether passes through the annular space between the two tubes, returning thence to the refrigerator. It will thus be seen hat there are two circulating systems maintained, that of the let us make it up by gaining the world's marglycerine solution and that of the ether, both kets; if Western woolen mills underbid us in of which have worked uninterruptedly since the supply of coarse staffs, such as call for the the ice was first formed and the rink opened, which was on the 7th of January last.

conditions. Up to the present time there has not been any breakdown, and the worst delay that could arise would probably be caused by the failure of the pump valves. These could be replaced in a few hours without fear of reducing the temperature of the glycerine solution, there being a large quantity of it. Mr. kept slowly circulating without its efficiency ers is repaired each evening by sprinkling the enclosed in a canvas building, and a temperature of over 60° Fahr. has been at times reached in it without detriment to the ice. The only drawback experienced has been from a saturated atmosphere with low barometric pressure, which causes an aqueous deposit on the surface of the ice, which solidifies rather roughly. In other respects there is no drawback to the skater's enjoyment, except, perhaps, limited space. As to the question whether the rink can items of cost, only amount to £12 per week,

with a very much larger rink. The present rink is only experimental, but a nearly completed. This rink is enclosed in a permanent building fitted with galleries for 40 ft. by 24 ft. thus enclosing about 107 square of loose dry earth 4 in. thick. Upon this again is a 6 in. layer of cowhair carrying a layer of 2 in. deal planks forming a level floor with raised taste and skill of designers and workmen until edges and being covered with 1/4 in. of tarred cowhair. On this are laid the pipes which, instead of being rectangular and of iron, are of nothing. copper, of a flat oval section, 21/2 in. wide by hus altering the section in the details of the mechanical arrangement of the new rink.

Competition Between the East and the West.

From a sensible and well considered article is the Boston Commercial Bulletin we take the following:

As one industry after another forsakes the East and becomes firmly planted in the West,

metal plates and other material, and of obtain- exposed to too low a temperature, or if the cir- disadvantages as compared with Eastern coming gold, silver and other colored metallic culation be sluggish, so that a fatal obstruction petitors—dear capital and dear labor—are being effects by lacquering or varnishing the metal might be caused. He, therefore, uses as a cold rapidly overcome. Their advantages over us or other material, and then transferring transmitting liquid a mixture of glycerine and are all those which nature has given them, and thereto a printed picture, design, show tab- water, which remains uncongealed at a tempera- are all increasing in importance; their disadlet, or letterings, the lacquer, &c., serving ture below zero. This liquid is pumped up at vantages are all artificial, and are all diminish-

What, then, is to hinder New England, after a transition time of a few generations, during which one manufacture after another will leave us, never to return-what is to hinder it from then becoming the barren and forsaken wilderness which it might have been to this day but for the accidental landing of the Pilgrims upon our shores? We talk of our water-power; they sin, in Minnesota, in the Carolinas, in Georgia a worm in an auxiliary refrigerator, which and in Tennessee, whose power could drive all is supplied with fee dust produced by the the cotton mills of New England twice over. 3. In the process of producing ornamental skaters on the rink, the dust being mixed with plates in the manner described and claimed, salt.

In steam-power, so vastly the superior of water, and destined to almost entirely supplant it, their advantage, in cheap and extensive coal sideration of these facts, and the startling character of the least probable answers to the questions which they suggest, must occasionally disquict even the most stolid minds among

will find that there is really nothing in these present conditions the tendency undoubtedly is, and will continue, for capital, labor and indusplant themselves from the East to the West; but we have only ourselves to blame if some of these conditions are not changed to our advantage. If Southern factories gradually win from us the home markets for our cotton goods, least skill in manipulation, let us offset the fact by improving the quality of our goods, above The rink is not a public one, but is open to all in the matters of design and taste, and therby private subscribers, who enter upon certain win the markets, here and elsewhere, now held by foreign manufacturers.

The attention of manufacturers cannot be too frequently called to this last point, the necessity of making a finer class of goods, to take the place of the coarse manufactures transplanted West and South. This is to be accomplished through the combined employment of various Gamgee states that he could hold out for 48 methods, but above all by lifting up the taste hours, during which time the solution could be of the workmen. The importance to our manufacturers, in a direct pecuniary point of view, of ecoming seriously impaired. The slight wear the maintenance and continuance, in and out on the surface of the ice produced by the skat. of the schools, of a broad and practical system of instruction in industrial drawing cannot be rink with water from a water pot. The rink is expressed in too strong terms. Upon this more than upon anything else will depend our ability to hold our own in the industrial race.

We complain, and justly, of the disadvan-tages we are placed in by heavy transportation charges to Western markets. Let us leave, then, to our interior competitors the manipulation of the heavy articles in whose manufacture this disadvantage of ours is most marked, and concentrate our abilities upon finer, more expensive, and more luxurious goods. It costs be made to pay, Mr. Gamgee states that the charges for labor and coals, which are the chief a yard than a plain woolen carpet worth \$1, and yet the former has given employment, from first and that that expense would not be increased to last, to three or four times as many people as the latter. We can increase, to an indefinite extent, the amount of skill and taste put into larger one is in course of construction, and is cur goods, and find readier markets for them from that very fact, while the increase in value does not necessitate any increase in the cost of spectators. The skating surface will measure transporting the goods, or of the raw materials used in manufacturing them. It costs a good yards. The rink is formed with a concrete deal to bring cotton here, and to take cotton foundation 6 in. thick, upon which is laid a bed tons must pay as much for transportation as the the first value has been increased threefold. Brains can be transported the world over for

This, then, is the solution of one of the % in. deep, No. 16 gauge, and connected at the special difficulties under which New England ends. By substituting copper for iron, and manufacturers are laboring. Leave to the chance of Westerners accident from unequal expansion is avoided. coarse, cheap goods, in which they have so The ice will be about the same thickness as in greatly the advantage over us, and enter, to a the present rink, that is 2 in. Mr. Gamgee greater extent than ever before, upon the contemplates introducing several improvements | manufacture of high-priced goods, whose chief value is derived from the skill and taste employed in manipulating them-from labor rather than from raw materials. In a word, let the Eastern States enter upon the same relation, industrially, to the rest of the country that was borne to the United States, till within a few years, by England, France and Germany.

> Statistics of Buildings in New York. -Mr. Adams, the superintendent of the De-

partment of Buildings, has prepared an account the remaining manufacturers are apt to be of the houses, stores, etc., in New York, from strongly impressed with the hopelessness of which the following statistics are taken. The the struggle, in the long run, with their in- whole number of buildings on Manhattan Islland competitors. With labor scarce and un and is 84,200, d.vided as follows: Tenements. trained, and capital excessively dear, they have 20,485; brick dwellings, second class, 16,172; been enabled to wrest from us wholly several frame dwellings, all classes, 15,799; stone remunerative branches of manufacture, and are dwellings, first-class, 7136; brick dwellings, organizing a powerful competition with us in first-class, 5052; stone dwellings, second class, nearly every remaining interest. Such being the 2142; French flats, 198; hotels, 172; stores, case, already under conditions quite adverse to 8293; stables, 5099; factories, 2794; churches, them, what may we expect but a wholesale 425; banks, 67; hospitals and asylums, 66; abandonment of the exhausted and ill-favored slaughter houses, 64; breweries, 56; halls, 45; East when the generous profits which the public buildings, 33; railroad depots, 28; theapioneer manufacturers there are reaping shall ters, 27; ice houses, 23; markets, 11; distillerhave made them independent of outside les, 10; miscellaneous, 73. The number of capital, and the immigration induced by the dwelling houses is 67,156. The largest number growth of their industries have given them a of first class dwellings is in the Twelfth Ward. combustion chamber proper and the base of the each of the pipes. In selecting the liquid for body of skilled, intelligent and cheap work. Buildings are most numerous in the Twentyproducing congelation Mr. Gamgee discarded men to draw upon for a supply of labor? third and Twenty-fourth Wards. From 1862 to the use of brine for the reason that saline solu- They have the raw materials at their doors, the to 1869 the number of new buildings was tions act destructively on metallic surfaces from great home markets of the country are all 10,995; in 1870, 1899; in 1871, 2036; in 1872,

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for Sale.

FOR SALE, at Taunton, Mass.

The Steam Engine Works known as the Foundry and Machine Co., con-isting of all the Reat Estate, Machinery, Tools and Patterns necessary for building Corliss Steam Engines, from 10 inch to 34 inch cylinder; also a full stock of Tools and Machinery for general job work. This property will be sold extremely low, either for the Machinery, Tools and Patterns to be removed, or the entire property. The city of Taunton offers superior advantages as a location for any kind of machine business, having a navagable river for receiving coal and iron. Two lines of railroad connected by steamers between New York and Boston; superior Western connection by railroad, and a large and intelligent manufacturing population. For further particulars or catalogue of machinery address

GEORGE A. FIELD,

Taunton, Mass. Or J. M. LEONARD, Somerset, Mass.

STEAM ENGINES FOR SALE.

I offer the following very superior TODD & RAFFERTY Engines for sale, at greatly reduced prices, if disposed of before the 1st of May, to save removal, VI.

One 18x8. One 14x15 (as wmill), one 12x24 one 11x24 one 18x8. One 18x15 (as left) on legs), one 8x25, one 8x26, one 7x6, one 7x6, one 7x6, one 18x16 one 18x16

COPPER ROLLING MILL FOR SALE.

I offer for sale the Rolling Mill of the Houghton Copper Works, situated at Houghton, L. S., Mich.; and about 2 acres of land on which it is located, the machinery, tools, appurteances and dock connected therewith. Also all the corporate rights and franchises of the company, and good will and trade already established. For price, terms of sale or other information, address, M. VAN ORDEN, Agent, Houghton Copper Works, Houghton, L. S., Mich.

For Sale,

One Six Inch Roll Train with extra rolls.

FOR SALE.

ILER, PROBERT & CO.

One Sturtevant Blower.

\$500 cash, f. o. b. at Troy, N. Y.

Two 12 inch Rolls.

Shears to cut 1 1-4 inch Iron.

One Lathe.

BLAST FURNACE FOR SALE at

S. L. McKISSON,

Des Moines, Iowa.

Worcester, Mass.

the best of reference must be given.

The Abolition of Wharfage.

* The Pittsburgh Telegraph speaks as follows on a subject of much interest to the shippers and carriers of freight upon our inland water

As retrenchment in a'll matters pertaining to steamboats is in order, we would suggest that was the owners of boats and all others interested have the small item of wharfage investigated by men of good legal ability, and in our opinion they will tell you that it is a tax on commerce that no city has a right to impose without authority from the Congress of the United States. The councils of this city had, and we believe it is still in existence, an ordinance compelling boats to pay a certain amount per ton for all railroad iron taken from the cars at the foot of Liberty street and loaded on board of boats. If that is not a clear violation of the constitutional laws of the United States, which forbids any State taxing the products of another passing through the State, then we confess we are not conversant with the English language. We do not wish to be understood as being in favor of abolishing all wharfage, for we think that boats should pay a reasonable whart license to do business for one year, the same as all business firms pay for their legitimate business license, the proceeds of which should be applied to repairing and keeping the wharf. The writer very well remembers hearing the Hon. E. M. Stanton tell one of our old packet captains during the fight between the Pittsburgh and Cincinnati Packet Company and the Wheeling Bridge Company (which he gained in all the courts, and had not Congress interfered and declared it a post road, that bridge would long since have ceased to interfere with navigation) that if the boatmen would raise him two thousand dollars he would agree to free them from ever after paying any wharfage. Let the river men and others that are interested raise a sufficient sum to get some good lawyer's opinion on the constitutionality of the wharfage question, and find out whether it is a just or unjust tax. Here is a section of United States law on the subject: "Wharves and docks must be so constructed as not to impair, but to facilitate navigation and commerce, and as such be free to all without tax or impost duty .-Brightly's Federal Digest for 1789-1869; section 582, page 802."

Contracts for Lake Superior Ores.

The Marquette Mining Journal says: The iron outlook seems to be sufficiently encouraging to induce our leading iron companies to smaller mines, including some which had been closed down, or partially abandoned, are getting ready for an active campaign. Although the price of ore is low, compared with other years, still the cheap rate of labor goes a great way in meeting the deficiency, and while we cannot expect to see the prosperity which we experienced a few years ago, before "the panic," still there is no good reason, that we can see from the present outlook, why we are not safe in predicting a meed of success, and a satisfactory result to mine owners and to the people at large, at the close of business this fall. With the experience of the past, teaching us to economize where we formerly wasted, or were extremely careless, with a better and more extensive knowledge of the laws which control supply and demand, with a better appreciation were, on the road to success. Most of the larger mining companies, including the Jackson, New York, Cleveland, Lake Superior, Barnum, Saginaw, Republic, Michigamme, Spurr, and others, have contracted for nearly if not all the ore they will be able to deliver this season, while the Cambria, Bessemer, Rolling Mill. Palmer (old Cascade), Green Bay, Winthrop, for the sale of more or less of their ores, or can if economy is exercised. On the whole the blues; (14) buff and black; (15) buff and blue lookout is far more encouraging than it has or mauve, and so on. been for the last two years.

A hardware manufacturer in St. John, N. B. has patented a new style of fire-proof window shutters for warehouses and other large buildings, of which a local journal says: "The in. tention to the conditions which he had examvention has for its object the connecting of all ined in the Isle of Arran. There, to use his the window shutters upon each row, or upon own words, he "found numerous cylinders of each side of a storehouse or other building, so trees, completely flattened of course, lying that they may be closed or opened at the same across each other at various angles, with their time, and from any floor of the building upon bark compressed into less thickness than comwhich the operator may happen to be. The mon pasteboard, and the carbonaceous matters shutters are of iron and are hollow, running on reduced to graphite, so that from three to four wheels on a rail above them. They are con- inches in thickness of this impure coal connected together by hollow rods, so that they may be kept parallel and all move together. The wheels are attached to each shutter, and years only for the life of each tree, we have six the rail on which they travel is protected by a hundred years for the formation of four inches hood or cornice from the ice or snow. The of impure coal, or eighteen hundred years for hollow pipes are at the bottom. In the walls the formation of one foot of coal.' of the building are rods working up and down, and to them are attached balance weights which keep taut the chain by which the shutters are moved. On the inside of one of the shutters, on each story, is a tap to which a hose may be attached. In case of fire a person in the inside of the building can turn a crank or pull down one of the perpendicular rods in the wall, and the shutters of all the front, or of any one story, will be instantly closed. The balance weights cause the arrangement to work so easily that a boy can operate all the shutters of any building with great case. So soon as they are closed a hose is applied to the tap on the inside, and the water fills the hollow shutters, passing from one to another by the pipes at the bottom. In this way the shutters are kept cool in the midst. of a fire, no matter how near it may be. The water is liberated little by little by small holes

in the pipes." A model of this apparatus will be exhibited at the Centennial World's Fair.

Glass Making in Pittsburgh.

A writer in the Pittsburgh Gazette says The manufacture of this article, at Pittsburgh, commenced by the late Gen. James O'Hara, in company with Isaac Craig, in 1796, The difficulty of procuring workmen, want of experience and other obstacles, occasioned great delay and heavy expenditures of money insomuch that the success of the business seemed, for two or three years, very doubtful. Major Craig declined any further concern in the year 1798. To the perseverance and wealth of Gen. O'Hara we are indebted for the establishment of this important branch of business. An additional glass works was built by him and preparations made in 1802 for manufacturing white and flint glass, and an agent was sent to England to procure workmen; but the war of 1803 breaking out between France and England, the agent returned without success. This brauch has since been carried to great extent and perfection by Messrs. Bakewell & Page. Mr. John Robinson has also erected a glass works, and manufactures white and flint glass.

At the present time the following works are in operation-and the quantity of glass manufactured annually is estimated in boxes of 100 feet each:

O'Hara's two works, called "Pittsburgh Glass Works," furnish window glass and hollow ware equal to..." "Birmingham," nearly opposite to Pittsburgh
New Albany," at the mouth of Redstone
Creek on the Monongahela, four miles be Creek on the Monongahela, four miles be-low Brownsville.

Benedict Kimbler," at Bridgeport or Brownsville.

New Boston," at Perryopolis, on the Youghlogheny.

Youghlogheny.
"Williamsport," occupied by W. Shenson..
And the Geneva Works, established by Wm.
Gallatin, about. 4,000 ...\$135,000 ...\$135,000 Total....
Which may be valued at....
To which add white and flint glass.....

Of this amount \$100,000 worth are probably exported-a part in payment of pot and pearl ashes, salt, lead, clay and other materials, leaving, however, a considerable balance in favor of Pittsburgh.

It is to such manufactories as those of irca and glass, which have been mentioned, and others, which have not been noticed, which yield a large surplus for exportation, that Pittsburgh and its neighborhood owes its prosperity; these are the true sources of national wealth, in which our district will continue make extensive preparations for this season's to participate so long as the present spirit business. In fact a large proportion of the of industry and improvement characterizes its inhabitants

The Cabinet Maker some time since published an article upon the gaudy manner in which machinery is too often painted; it is too often daubed with the most glaring and ill-contrasted cclors that disguet the sight and mar the general appearance of the machine. The following remarks will assist our readers to a better comprehension of what we mean, and also to select proper artistic contrasts: We have seen machinery in which bright, gaudy reds and scarlets mingled with bright blues and yellows in the most extraordinary way. A very little consideration will show that such combinations are breaches of the laws of harmony, which require that one color shall be subservient to the other. so as to perfectly blend the whole to an even and pleasing tone. Thus, the complementaries of the value of money, we are now ready to "turn over a new leaf," and start anew, as it of red are green; of blue, orange; of yellow, violet. Precise rules, however, cannot be laid down, and much depends upon artistic effect to be decided by the eye. The following suggestions as to contrasts, however, may be found of assistance: (1) Black and warm brown; (2) violet and pale green; (3) violet and light rose color; (4) deep blue and golden brown; (5) chocolate and bright blue; (6) deep red and and other smaller mines, have either contracted gray; (7) maroon and warm green; (8) deep blue and pink; (9) chocolate and pea green; sell what first-class ores of the different kinds (10) maroon and deep blue; (11) claret and they may chose to mine. The prices received, buff; (12) black and warm green; (13) slate although not large, are still fairly renumerative color with nearly all bright colors, excepting

> Mr. E. A. Wunsch, in a recent address before the Geological Society of Glasgow, referring to the evidence showing the immense time required to produce a seam of coal, directed attained, probably, twenty generations of trees overlying each other. Now, if we allow thirty

Special Notices.

GOODS

Having bought the "Detroit Novelty Works"

"Detroit Novelty Works"
we are desrous of ienting for a term of years the Brass Snops therein, consisting of Moiding Hoom, 55x85 feet, with three melting furnaces and large coke oven; Finishing Hoom, 53x85 feet, with it lathes and all appliances for fallshing goods in the best manner. Any required power can be snopiled. Everything is in good for the complete the standard of the standard of the complete the standard of the stan

DETROIT IRON & BRASS MFG. CO.,

Special Notices. **WANTED TO EXCHANGE**

at cash prices, real estate for 30 to 35 lb. T Railroad Iron, new, or first-class second-hand. Sufficient to lay 10 miles of track. Address,

> P. Y. HITE, Tarentum, Allegheny Co., Pa.

NOTICE TO Centennial Exhibitors.

I am now manufacturing for the use of Exhibitors at the Centennial, one of the most unique business cards that could be presented to a vicitor.

On one side is a mirror, on the back is where your name and address are stomped in gilt. It is round in form, about the size of a Silver Half Dollar, INDESTRUCTIBLE. It will be prized by those who receive one, and not laid aside as paper business cards are. Prices for quantities furnished

W. F. HYATT.

Successor to HICKOX MFG. CO., 280 Pearl Street, NEW YORK

WANTED a situation as superintendent of some Engine and Boiler or other Mechanical Manufactory, by a thoroughly competent and business man. Experienced in managing help and designing and drafting all kinds of machinery. Best references offered. Address, B.,

4 Spring Street, Utica, N. Y.

WANTED situation as foreman in a mechani-cal catabilishment, by a man 28 years of age, is a college graduate, has served a three years' ap-prenticeship at machinists' trade, and for past two years has been a-sistant draughtsman is water works construction. References as to ability and character. Address, F.M.C., P.O. Box 268, Hochester, N.Y.

SITUATION WANTED by an Iron Moulder, accustomed to machine work. Wages not particular. Address, C, Box 2173, N. F. P. O.

WANTED.—A PARTNER.

A Wholesale Hardware Firm, established in Chicago, Ills., for 38 years, and which is well located in business center of city—has a large and well selected atock of goods on hand, and an exteueive and rapidly increasing country trade—wishes to increase its facilities for extending business, by taking in a partner with eapital, to take charge of the financial department. A capital of from \$25,000 to \$30,000 is necessary, and to the proper party with that amount a rare chance is offered. None but first-class business men with the above amount of ready cash need apply. Address

HARDWARE MERCHANT

HARDWARE MERCHANT. Tribune " Office, Chicago, Ills

Plummer Scroll Sawing Machine

For Amateurs, Artisans, &c.
Simple, strong and durable. Is adapted for general light wood scroll and fret sawing, also for sawing thin metals and other hard substances. Sec The fron Age of April 18th, No. 15, page 3, for description and cut. Patties wishing to lease American or foreign pauents on royalty or to purchase the same will please communicate with

J. H. PLUMMER, 1976 Pacific St., Brooklyn, N. Y.

CENTENNIAL EXHIBITION.

A young man, a native of this city, with good ref rences, having had large experience in the Hard rare Trade, off.rs his services in receiving, arrang, ag and keeping goods in order during the exhibi ion. Terms moderate. Addless,

JOSEPH K. PARKER, 461 North 2nd Street, Philaderphia

VENTILATING & STEAM HEATING.

A thoroughly competent engineer, with extensive experience in the above line, desires employment. Office of The Iron Age, 10 Warren St., N. Y.

Business Opportunities.

New Capital Procured, Partnerships Arranged, and Commercial, Mining and Banking Corporations Or-

CLARKE, CHITTY & CLARKE, Board of Trade Offices, New York. P. O. BOX, 4071.

A. PURVES & SON, Corner South & Penn Streets, Phila., Dealers in

scrap Iron & Metals, Machinery, Tools Shafting & Pulleys, Steam Engines, Pumps & Boilers, Copper, Brass, Tin, Babbit Metals, Foundry Facings. Best Quality Iugot Brass. Cash paid for alkinds of Metals and Tools.

HARDWARE SPECIALTIES Manufactured to order on favorable terms. POWER AND ROOM to Rent by the CORRUGATED METAL CO., East Be.lin. Ct

JUST ISSUED.

EVERYTHING

Seeds, Implements, Ma-chinery, and Fertilizers. New Catalogue, 200 Il-lustrations, mailed on re-ceipt 10 cent stamp.

FARM. A. B. COHU, 197 WATER ST., N. Y

For Sale. The Patent of R. H. Hasenritter's

Portable Show Case,

described and illustrated in the January 1, 1876. issue of the Scientific American, in the whole or in R. H. HASENRITTER, Herman, Mo.

Partner Wanted,

In large Iron Property. Charcoal Furnace and Forge Works leased for \$12,000 per annum, quarterly payments. Room for other works. Make best quality metal. Address

P. O. Box 863, Baltimore, Md.

To Manufacturers and Patentees.

Wanted useful patented articles for manufacture, suitable for sale by hardware de iers. Cash will be paid for patents or advance made for royalty.

P. P. PRATT, Care PRATT & CO., Buffalo, N. Y.

Special Notices.

OTIS T. BEDELL'S Patent Rapid Transit Screw Wrench.

PATENTS FOR SALE. One-half the price of the American Patents will be taken in stock, as the inventor can place several thou-sands of the wrenches. The English Patents for sale, or all the patents to lease on a royalty of less than one per cent. Address

OTIS T. BEDELL, S3 Rende St., N. Y. Care ELY & WRAY. IF See cut—Vol. 17, No. 12, p. 9.

SPECIAL NOTICE.

Having established ourselves in business in this city for the sale of

American Hardware, House Furnishing Goods, Agricultural Implements, etc.,

we beg to solicit correspondence with parties desirous of being represented by us in Germany and surrounding countries.

HAMMACHER & DELIUS. Hambuig, Germany, April, 1876.

WANTED.—A first-class business man famil-iar with machinery and manufacturing, caps-ble of handling large bodies of men, desires a respon-sible position. References satisfactory. Address,

IRON AND STEEL, Care of P. O. Box 813, Bridgeport, Conn

DROP FORGINGS.

The TRENTON VISE & TOOL WORKS, Trenton, J., having increased their facilities, are now able do all kinds of

Iron and Steel Drop Forgings in quantities to order at reasonable rates

HERMANN BOKER & CO, Proprietors 101 & 103 Duane St., N. Y

SPECIAL NOTICE.

I have three patents for Dies, Machiners, and Toolor making Augers and Bits, each running seventeer ears; dated as follows: Dec. 19, 1865; January 31, years; dated as follows: Dec. 19, 1885; January 31, 1866, and July 3, 1866. There is a special cleim on each of the Dies. All persons infringing on said patents will be held responsible to the extent of the law.

DEEP RIVER, Conn., Sept. 7, 1874.

WANTED TO PURCHASE, 100 tons good Second-Hand T Rails, 18 or 20 lbs. per yard.

Address, giving particulars,
PIPER & THOMPSON,

TO LET,

A Light, Handsome Office.

Possession Immediately. HERMANN BOKER & CO., 101 Duane Street. N. Y.

MANUFACTURERS

desirous of introducing their goods to the British and Continental Markets, are advised to insert advertisements in the newspaper "IRON," pub lished every Saturday, at 99 Cannon Sta London, E. C.

SCALE: First 3 lines, 3/; every additional line, 10d. Price, 6d. per Copy, or 30/ per annum, inclusive of postage to the United States.

Steel Castings.

Solid and Homogeneous. Guaranteed tensic strength 25 tons to square inch. An invaluable substitute for ex-pensive forgings, or for Cast Iron requiring great atrength. Send for circular and price list to CHESTER STEEL CASTINGS CO., Evelina St., Philadelphia, Pa

Wanted-A Partner.

In a foundry and machine business, already well es tablished. Locality splendid and healthy. A practical man with means is wanted to join

practical man who is already well established.

Address CAR WHEEL FOUNDRY, P. O. Box 134, Selma, Alabama

Briesen's Patent Agency FOR SECURING INVENTIONS, TRADE MARKS, &c., IN AMERICA

AND EUROPE, No. 258 Broadway, New York.

A. V. BRIESEN.

NOTICE! POND'S TOOLS.

The undersigned has assumed the Personal Property, including accounts, finished and unfinished Machinery, good will &c., connected with the manufacture of Machiners's Tools as conducted by Mr. Lucius W. Pond since 1847, and will continue the said business at the old stand, cor. Union and Exchange Sts., Worcester, Mass., under the name of David W. Pond, Successor to Lucius W. Pond.

CARD.—Having assumed the business mentioned above, I solicit Inquiry and Paironage, with guarantee that present standard of Workmanship, and quality of Machinery shall be maintained. A large quantity of New and Second-Hand tools, Store at 98 Liberty St., New York, will be discontinued from Feb. 1, 1876, and all sales made from manufactory.

Respectfully, DAVID W. POND,

DISSOLUTION OF COPARTNERSHIP

DAVID W. POND.

Respectfully,

The firm of McClernan & Hymes is this day disolved by mutual consent. The business of the firm vill be liquidated by M. McClernan alone, No. 130 dberty Street. New York, Jan. 20, 1876. M. McCLERNAN, D. HYMES.

DISCOUNT LISTS.

Hinges Stanley Works' list... 10 % to 50 % each, Tond Butts. Union Mfg Co.'s..... 10 % to 60 % 25c Dayton & Lamberson, 97 Chambers St., N. Y

AFTER SEVERAL YEARS OF SUCCESSFUL experience in the construction of

New and Experimental Machinery, we desire to invite the attention of manufacturers, and others wanting that class of work, to our facili-

ties at Peckskill, N. Y., near the Hudson River Railroad depot, 1h. 20m. from N. Y. City. ANDERSON BROTHERS.

TESTING MACHINE, built by the Soula Boston Iron Co., arranged for tensile and compressive strains, capacity 150 tons.

MILLING MACHINE, built by Brainard Milling Machine Co., cutters swing 28 inches diameter, and spindle set at right angles, which insures accurate work

HRON HOOF, that covered New England Iron Co.'s Mill, 8 arches 80 feet span, posts 18 feet high, building now 80 leet wide by 90 feet long.

ROLLING TABLE, for straightening Iron.

PUDDLE TRAIN, for Billets and 3, 4 and 6 inch Bars.

FIVE DRILLS.
CORRUGATING MACHINE, Complete.
CORRUGATED SHEET IRON and barbed SMALL UPRIGHT ENGINE, 15 H. P.,

PUMPS, Etc. Apply to WM. E. COFFIN & CO., 8 Oliver Street, Boston.

HARDWARE STORE, FOR SALE.

Is one of two stores situated in a city of seven thousand inhabitants, three railroads, ane country surrounding. Best of reasons for selling. For fur-ther information, address, **KING & SON**, Lima, Allen Co., Ohio. BLACK WALNUT

For Sale Cheap.

Large quantities of pieces of plank suitable for turn-ing and sawing into any article requiring such wood. Perfectly Dry and Sound.

PROVIDENCE TOOL CO. Providence, R. 1. FOR SALE.

At Lowest Manufacturers' Rates, GUNS & SHEET ZINC. Best German and Belgian Brands.

By LOUIS WINDMULLER & ROELKER, 90 Reade Street, N. Y.

HARDWARE BUSINESS For Sale.

In the city of Norwich, Conn., an old stand facing two streets. Rents low. Good help and doing a prosperous business. Large back county. The best of reasons given for selling. Address,

FULLER & PARISH, Norwich, Conu. FOR SALE.

An % inch mill train for making Merchant, Band and Hoop Iron. Will be sold cheap.

Apply to W. W. JONES, Near the Lebigh Valley Railroad Depot,

Allentown, Pa.

Trade Report.

Office of The Iron Age, Wednesday Evening, April 19, 1876.

The dullness which we have reported for several weeks past, still continues in the several financial markets, and "the street" wears much of the aspect it usually presents in midsummer, when the active spirits of the Exchange and the curbstone are supposed to be out of town. The principal subject of discussion has been the probable effect of the effort to substitute A silver for fractional currency, the bill authorizing which was signed by the President on Monday last. The attempt to force this picayune 'resumption" is not generally regarded with favor by the business community. It is commonly believed that the measure was passed through Congress by those interested in bonanza stocks, with a view to making a market for silver and appreciating its value. This is very well for those who have bullion to sell to the government; but to the mass of the people the substitution of silver for paper will bring no benefit to compensate for the attendant inconvenience. It withdraws a cheap and convenient currency from circulation, and gives us in exchange a currency which is neither cheap nor convenient. The fractional currency is issued for the cost of paper and printing. The silver must be bought with bonds bearing interest at 5 per cent. per annum, and will cost for assaying and coinage at least 7 per cent. In round numbers, it will cost the people in taxation, \$8,000,000 per annum to enjoy silver currency, and while "the jingling of the guinea" may be potent, as the poet tells us, to "heal the hurt that honor feels," the jingling of quarters and half dollars in the breeches pockets will not give a satisfaction great enough to s stifle the unpleasant consciousness that we are paying enormously high for our musicanother point on which the interests of the bonanza stockholders and the people at large are widely at variance. The former are interested in appreciating the value of silver, while the people are primarily and supremely interested in appreciating the value of the greenback description of Hardware is remarkably firm. to that of gold. To make silver an important part of our currency, while the principal money of the country consists of fluctuating in Hardware, Edge Tools and Agricultural Imlegal tenders, is obviously premature, and will not be attended with any benefit to the country.

will receive sealed proposals for \$5,800,000 new five per cent. bonds, to be sold by the Treasury for the purpose of getting money wherewith to America. We were shown by E. M. Boynton, pay the claims awarded by the Geneva tribunal in the Alabama matter; the whole amount of the indemnity received from England, \$15,500,-000, was invested in new 5 per cent. bonds, and the sale of part of these bonds is to satisfy such claims as have been approved.

During the week the money market has been easy, with rates at 3 @ 4 per cent. on call, and 4 @ 6 per cent. on prime mercantile paper.

In the gold market the fluctuations have been unimportant, as will be seen from the accom-

Thursday	Highest.	Lowes 1133
Friday		
Saturday	11336	1133
Monday		1121
Tuesday		118
Wednesday		113

The stock market has been weak and unsettled, with the principal dealings in Lake Shore, Western Union, Pacific Mail, Erie and Michigan Central. The closing quotations of active shares are given below.

Government bonds have declined a fraction during the week, in common with nearly all investment securities. We give below the latest quotations of governments. The following is a comparison of the bank averages for the past

two weeks:		
April 8.	April 15.	Differences.
Loans \$161,786,200	\$258,297,900	Dec \$3,488,300
Specie 20,336,800	19,400 800	Dec., 936,000
Legal tend's.88,700,400	38,836,800	Inc. 136,400
Deposits 207,993,300	205,542,500	Dec., 2,450,800
Circulation. 16,257,600	16,239,100	Dec., 58,500
The Assessment trade	movemente	for the meak

The foreign trade movements for

IMPORTS. For the week ended April 15: 1874. 1875. 1876. Total for week...\$9,269,815 \$6,117,777 \$3,063,422 Prev. reported..121,674,492 106,876,297 94,614,907

Since Jan. 1....\$130,944,307 \$112,994,074 \$99,678,329 Among the imports of general merchandise

	Quant.	Value.
Anvils	229	\$1,949
Brass goods	24	8,155
Bronzes		1,024
Chains and anchors	6	427
Cutlery		17,651
Gas Fixtures		257
Guns	9	2,805
Hardware		401
Iron, pig, tons		16,366
Iron, sheet, tons		729
Iron, cotton ties	459	2,137
Iron, other, tons	94	5,648
Lead, pigs	750	5.017
Metal goods	261	21,942
Needles		13,899
Old metal,		194
Per. caps		1,988
Saddlery		1,399
Steel		9,196
Silverware		994
Fin. boxes		191,760
Tin, 2710 siabs	200,066	34,705
Wire		8,879

EXPORTS, EXCLUSIVE OF SPECIE.

For	r the week	ended Ap	ril 18 :	
	for week	1974, \$4,809,253 78,904,468	1875. \$5,616,840 66,752,418	1876. \$5,009,395 67,395,652
Since	Jan. 1	\$83,213,721	\$72,869,250	\$72,465,047

	EXPOR	TS OF	SPECIE.	
For	the week end	led Ap	ril 15 :	
To	tal for the week	k		 1

ly reported	
1874	All of their Locks are worked with small is Sterling metal Keys, which will not corrode, are claimed to be stronger than steel. It following is their list, which is subject to the stronger than steel.

count 331/2 per cent. to the trade. The Union Government bonds close as follows:

1881, reg 1201/	121	
s, 1881, cou	122	Felter's Patent Upright Rim Dead Locks,
-20 1865, reg 114 ½	114%	For Narrow Stile Doors. Adjustable to Right
-20 1865, cou	11736	Left Hand Doors of any thickness. Inside wor
-20 1865. new reg	118%	of Solid Bronze or Brass.
-20 1865, con	118%	
-\$0 1867, reg	120%	Packed separately, with complete trimmings.
-90 1867, co:1	120%	Per do
-90 1868, reg122	122%	No. 28, 8x5 in., Iron Bolt, Solid Bronze Es-

C. S. 5-90 1868, con	122%	7.4
U. S. 10-40 reg	117	N
U. S. 10-40 cou	11836	7.4
U. S. 5s. 1881, reg	116%	N
U. S. 5s. 1881, cou	118	24
The following were the closing quote		N
active shares :		F
Bid.	Asked.	F
Atlantic & Pacific R. R. Preferred 3%	A A	
Atlantic and Pacific Telegraph 17	18	
Chicago & Northwestern 40%	40%	d
Pref 59%	60	83
Chicago, Rock Island and Pacific 104%	10436	
Chic., Bur. & Quincy	118	A
Col., Chic, & Ind. Cent 434	434	-
Clev., Col., Cin. & Ind's 59	58	
Cleveland and Pittsburgh. 95% Chicago & Alton. 101%	96	
Chicago & Alton101%	103	
" Pref	110%	
Consolidation Coal 40%	41	N
Canton	40	4
Del. Lack. and Western	113%	N
Delaware & Hudson Canal114%	115	T.
Adams Express	108%	
American Express 60	61	
United States Express	72	T
Wells, Fargo & Co. Express 86	87	Be
Erie 15%		W
Harlem137	138	te
Hannibal & St. Joseph 16%	17	0.1
A 101 #978	25	
Illinois Central	99	Α
Kansas Pacific 9	10	
Kansas & Texas 11	11%	1
Lake Shore	55%	
Michigan Central	5234	N
" Pref	89% 65%	
Mariposa	11	N
Mariposa	11	
New York Central11234	118	1
New Jersey Central100	100%	1
New Jersey Southern 114	136	
Ohio & Mississippi	1734	0.1
Pacific Mail	19%	12
Panama	130	12
Pittsburgh & Fort Wayne101%	10236	a
Pacific of Missouri 14%	1436	[1]
Omcksilver 17	18	0
" Pref	2336	
St. L., Kan, City Northern 536	6	A
" Pref 28%	29	4
Tol., Wabash & Western 2%	256	
Union Pacific	65	
Wostown Unrow Bolomenh 6912	677.27	2

GENERAL HARDWARE.

Some of our city houses are fairly busy, and in the matter of prices the market for every

We have frequently alluded in these columns to the growing importance of the export trade plements. In this connection we would mention the fact that a good many Saws of Ameri-On Monday the Treasury gave notice that it can manufacture are taking the place of Eurogean goods, not only in Canada and Australia, but on the European Continent and in South manufacturer of "Lightning" Cross-Cut and Buck Saws, several invoices of these goods, making a very handsome aggregate, which have been shipped during the current month to Australia, South America, Russia, and other foreign countries, and we think the enterprise of our manufacturers, guided a little more in this direction, will ensure to them an outlet sufficient to consume the over production that in many lines of goods threatens evil consequences.

In Foreign Hardware we hear considerable complaint of dull times. Importers of English screws report an active inquiry, which is natural in the unsettled condition of the market. George W. Bruce, No. 1 Platt street, has in store a very large and well assorted stock of fine quality English Gimlet Point Wood Screws, which he offers to the trade at discount 40 and 5 @ 40 and 10 per cent. from American list, according to quantity.

The demand for Nails is scarcely as active as it was a week ago. Manufacturers and holders ture delivery continue to be declined except at prices ruling at time of shipment. We quote as before, 10d., in lots of 100 kegs and over, \$2.75; for small lots an advance of 5 @ 10 cents per keg would be asked, according to quantity. We have received the following:

7 AND 9 CLIFF STREET, NEW YORK, April 15, 1876. We have accepted the sgency for this market of the Harrisburg Nail Works, formerly conducted by Messrs. Holden, Hopkins & Stokes. We shall at all times carry a large and com-

plete stock. Your orders are earnestly desired. Very respectfully, JESUP & STERLING. It affords us pleasure to announce that the Lawrence Curry Comb Company, whose factory was destroyed by fire about four weeks ago, are already established in new quarters, with better facilities for producing their goods than ever before. They inform us that all orders for "The Perfect Comb" will be promptly filled. Their office address is as formerly, No. 382 Second avenue, corner of Twenty-second

The American Lock Manufacturing Co., Cazenovia, Madison county N. Y., have issued a descriptive catalogue and price list, fully illustrated, of Felter's Patent Locks, which they are making in a great many new styles and patterns, both in Builders, Cabinet and Pad Locks. We print below the list entire. A few of the 1876. In their introductory notice they say:

In presenting this illustrated catalogue of In presenting this illustrated catalogue of goods manufactured exclusively by us, we refer with pleasure to the continued demand for them, which we regard as sufficient proof of their superiority. During the past year we have erected commodious buildings, and by the use of machinery especially adapted to their construction, we are enabled to offer a line of goods that are unsurpassed in quality of workmanship and finish, as well as in security against thieves. An examination of the list will show that we have added many new styles, which our customers will find are like our other constructions will find are like our other constructions. The construction of the list will show that we have added many new styles, which our customers will find are like our other constructions.

Asked Nut Co., No. 99 Chambers street, are agents for

hat

These Locks are sultable for all kinds of heavy
loors, are operated by the key from either side, and
are capable of innumerable changes.

Felter's Palent Horizontal Rim Night Latches. Adjustable to Right or Left Hand Doors of any thick-ness. All parts of these Latches, including the case, are made of solid Bronze and Brass. Finely

inished.

Packed separately, with complete trimmings.

Per doz.

No. 244, 4x3½ in., Bronze Bolt, Case and Ornamental Bronze Escutcheon, 3 Keys....\$
No. 345, 4x3½ in., Plated Bolt, Case and Escutcheon, 3 Keys.....\$
These Latches are intended for city residences where mortise Night Latches are not applicable. They are very desirable for use upon sea going vessels, as being made wholly of bronze and brass, they will not corrode or get out of repair. Reverse bevels to order without extra charge.

Fetter's Putent Horizontal Rim Night Latches.

Adjustable to Right or Left Hand Doors of any

thickness.

Packed separately, with complete trimmings.

Per doz.

Horizontal Rim Night Latches

Heavy Japanned Iron Case and Striker With double stop, the thumb piece of which is made of American Sterling Metal. Each Latch packed in heavy paper box, with fittings, screws, and printed directions for putting on.

and printed directions for putting on.

Solid Bronze Escutcheons. Per doz. Each.

No. 44, 5 Keys. Solid Bronze Bolt... \$2800 \$2:33

No. 44, 5 Keys. Solid Bronze Bolt... \$25:30 2:13

No. 46, 2 Keys. Solid Bronze Bolt... \$25:30 2:13

No. 46, 2 Keys. Solid Bronze Bolt... \$25:30 2:13

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No. 46, 2 Keys. Solid Bronze Bolt... \$25:30 2:13

No. 46, 2 Keys

Filter's Patent Mortise Night Latch. Adjustable to Right or Left Hand Doors of any Thickness.—Finely Finished. Packed Separately, with Complete Trimmings.

Fer Dos.

100, Plain Bronze Front and Striker, lated Rose and Escutcheon, Porceiain Plated Rose and Escuteneou, Knob, 3 Keys. No. 162, Plated Front, Striker, Knob, Rose and Escutcheon, 3 Keys. No. 103, Plain Bronze Case and Trimmings, u Keys.

The above are also suitable for offices, club rooms, society and lodge rooms. No. 163 is made wholly of bronze and brass, and is intended for ship use.

Feller's Patent Mortise Night Latch Adjustable to Right or Left Hand Doors of any Thickness. Finely Finished. Packed separately, with complete trimmings. Per dog

No. 106, 3x3¼ in., Ornamental Bronze Front, Strike and Escutcheon, Porcelain Knob, Plated Rose, 3 Keys.
No. 107, 3x3¼ in., Ornamental Bronze Front, Strike, Knob, Rose and Escatcheon, 3 Keys.
The above are also suitable for offices, club rooms, society and lodge rooms.

Filter's Patent Solid Bronze Padlocks. Finely Finished. Packed in & dozens. Weight, 6 pounds per dozen.

Felter's Patent Burglar Proof or "Jail" Self-Lock ing Padlock. Packed in % dozens. Weight 2 pounds each.

The above are intended for use upon store doors, warehouses, freight cars and jails, and wherever a warenouses, reight ca's and jails, and wherever a perfectly secure and very strong Lock is desired. They are not affected by the weather, as all working parts of the Lock are made of bronze or brass. They contain sixty tumblers, are self-locking, and cannot be epened by jarring the Lock.

Felter's Patent Finished Brass Cupboard Locks. For Right or Left Hand Doors, Plated Escutcheons.

Each Lock packed separately and furnished with 2 Keys, Per doz. Bronze Escutcheons.

Felt-r's Patent Finished Brass Desk and Box Locks.

Plated Escutcheons.

flat No. 86, Key withdraws only when locked 12:00 No. 88, Key withdraws when locked or unlocked 12:00

Plated Escutcheons, 1% inch Drop. No. 80A. Key withdraws when locked or un-

Bronze Escutcheons. No. 86A, Key withdraws only when locked. No. 88A, Key withdraws when locked or w locked Plated Escutcheons, 1% inch Drop.

No. 80B, Key withdraws when locked or un-No. 82B, Key withdraws only when locked.... Bronze Escutcheons. No. 86B, Key withdraws only when locked No. 88B, Key withdraws when locked or und..... Plated Escutcheons, % inch Drop

No. 80C, Key withdraws when locked or unlocked.... No. 82C, Key withdraws only when locked.... Bronze Escutcheons. No. 86C, Key withdraws only when locked.... No. 88C, Key withdraws when locked or un-

No. 86C, Key withdraws only when locked ... 17:25 No. 88C. Key withdraws when locked or unlocked ... 17:25 The above are intended for drawers of all kinds (including post office and cash drawers). The larger sizes are suitable for fine furniture, as the length of the case enables the escatcheon to be placed at the center of the drawer. Numbers 82, 86 and 82A, B, C and 86A, B, C, are especially desirable where positive security is needed, as in these Locks the key withdraws only when locked, so that with the key in his possession, the owner may feel sure that the drawer is locked. They are made wholly of bronze and brase, and do not get out of repair, and are susceptible of master key work in sets of 40 Locks.

**Witer's Patent Finished Brass Wardrobe Locks.

Feiter's Patent Finished Brass Wardrobe Locks. For Right or Left Hand Doors,

Plated Escutcheons Each Lock packed separately and furnished with 2 Keys. Per doz. No. 170. Key withdraws when locked or unlocked. \$20.00 No. 172, Key withdraws only when locked. \$20.00 No. 172, Key withdraws only when locked.

Bronze Escutcheons.
No. 176, Key withdraws only when locked\$18.50
No. 178, Key withdraws when locked or un-ane apove are intended for use upon closets, book cases, store rooms, wine closets, regalia closets, &c. They are made wholly of bronze and brass, and are easily put on, as they require no mortising. Feller's Palent Finished Brass Chest Lock, with Ex-tra Heavy Double Bolt.

Plated Escutcheons. Kach Lock packed separately and furnished with 2 Keys. Per doz.

Our Master Key Work Our Master Key Work

Admits of a wider application than any other Locks
known to the trade, as the number that will assemble in one set (for the same Master Key) is limited to
40, no key of which will open any lock except its
own. It a greater number is required we can furnish
as many sets as are needed, each set having its own
Master Key. This will at times be found desirable
as the proprietor, superintendent or other person in
charge can have the Master Key and so avoid the inconvenience of carrying a large number of Keys to
select from.

select from.
For fitting Locks to Master Key Work, 15c. each
per Lock net.
For refitting Locks to Keys (when all are lost) 90c.

per Lock net.
The above dues not include price of Keys. No Keys Duplicated by Number. One of the original must be returned in every case, or, if these are all ost, the escutcheon (if door Lock, or Latch, and the Lock, if it is Drawer or Desk Lock) mus. be returned to be refliced to new K-ys.

Norg.—Escutcheons. Padlocks, Drawer and Desk Locks, and duplicate Keys can be forwarded to us by mail under the postal law for a small amount. Orders of this kind will receive prompt attention, and can ordinarily be executed within twenty-four hours.

Blank Keys.

Duplicate Keys. Alt orders for Master Key Work, Extra Keys, and for refitting Locks must be addressed to the AMERICAN LOCK MANUPACTURING COMPANY.

Cazenovia, Madison Co., N. Y. The Perin & Gaff Manufacturing Company, Cincinnati, O., have issued, under date of 6th instant, a net price list of Hardware manufactured and for sale by them. They also give Fair Lawn Mill's Rife in oval Canisters of 1 pound each. notice of the publication of an illustrated catalogue of goods of their own manufacture, which will be ready for distribution on or about July 1st, 1876. The list under review contains prices and descriptions of a large variety of staple Hardware, both foreign and domestic,
Agricultural Tools, Sorghum Mills, Wagon

Size, Nos. 1, 2 and 3 grain, in Kegs, 6% Agricultural Tools, Sorghum Mills, Wagon lakers' Hardware, &c. The list also contains an illustrated supplement of seasonable goods.

Hay and Strate Knives.

Lightning Hay Knives.

Per doz. \$21.00
Fisher's Patent Hay Knives.

18-50
Wadsworth Red Hay Knives, No. 2.

Straw Knives, No. 3.

"Straw Knives, No. 3.

"Other Post Hole Diggers—Leeds' Patent.

In presenting this revised list for Whenteroft's Self-Adjusting Pipe Wrench:

No. 1 takes from % to 1 inch pipe.

2-25
No. 3 takes from % to 1 inch pipe.

3-20
In presenting this revised list to the trade.

Lamson's Patent Scythe Snaths. Graff's Planters' Hoes. Planters' C. S. Hoes, Handled. C. S. Garden Hoes. Weeding Rake and Hoe. Cultivator, Garden and Field Hoes, Brooks, Hin-man & Co.'s Patent. 18:00 Assorted, 5, 5% and 6 inch Handle I Hoes. 6 inch .. Discount 10 per cent.

On all goods in the above mentioned catalogue, except Cast Butt Hinges and goods marked "special net prices," a discount of 2 per cent, will be allowed for prompt cash. F. L. Kneeland, agent for Du Pont'e Gunpowder, has issued the following revised scale

of prices under date of 17th instant : Prices for the City of New York of all kin ds of Gun Powder manufactured by E. I. Dupont de Nemours & Co.

Canister Powder. In Cases of 25lb. Each. Diamond Grain, in Canisters of 1 lb. each.....\$103 Superfine Eagle Sporting, in Canisters of each
Eagle Rifle Shooting, in Canisters of 1 lb. each
Eagle Dock Shooting, in Canisters of 1 lb. each
Dupont Rifle. Fg, FFg and FFFg, in Canisters
of 1 lb. each
Dupont Rifle, Fg, FFg and FFFg, in Canisters
of ½ lb. each
A. F. & CO. FF and FFF, in Canisters, 1 lb. each, oval. A. F. & CO., FF and FFF, in Canisters, % lb.

Eagle Rifle Shooting, in Kegs, 6% lbs., Blue

Mealed Powder, in Kegs of 25 lbs. 6 % lbs. 147
Mining and Shipping Powder, A. Mining, F.
FF & FFF, grain, in Kegs of 25 lbs. 340
Blasting Powder, B. Mining, F. FF & FFF,
grain, in Kegs of 25 lbs. 290
Pulverized and Crystallized Saltpetre, Chemically pure, for Druggists' use; for Fireworks,
&c.; in bbls., 100. lbs. each. Delivered free of expense on board vessels in New
York.

ork.
Office, 70 Wall street, New York, April 17th, 1876.
F. L. KNEELAND.

The following revised prices of Gunpowder have also been issued:

Trade Prices for Gunpowder, Manufactured by Laf-lin & Rand Powder Company, 21 Park Row cop-posite Astor House). New York, Manufacturers of and Dealers in all Kinds of Sporting and Blasting Powder, Safety Fues, Electrical Blasting Appa-ratus, Exc.

Keg Powder. Keg Powder.

Orange Rifle, FG, FFG, FFFG, Kegs, 25 lbs... \$5.40

"12½"... 2.96

"161"... 6½"... 1.61

Orange Ducking ("Gold Band"), Nos. 1 to 5.

Metal Kegs, 6½ lbs... 3.61

Meal and Duet, Kegs, 25 lbs... 5.40

Fourth of July, "25"... 4.90

Shipping, "25"... 3.65

Blasting and Muning (A), F, FF, FFFF, FFFF, Kegs, 25 lbs... 3.65

Blasting and Mining (B), C, F, FF, FFFF, FFFF, FFFF, Kegs, 25 lbs... 3.15

Cannon and Musket, United States Standard, in Kegs and Barrels. Canister Powder.

Canister Powder.

Orange Lightning, Nos. 1 to 7, Canisters, 1 lb., 1 03

"Ducking, Nos. 1 to 5, 5 ... 338

"Rifle, FFG, FFG, FFG, 1 ... 48

"FFFG, 1 ... 31

5 lb. Canisters, in Cases of 5 each.
1 lb. 24

"April 15, 1876. Prices of the various kinds of Gunpowder manufac-

tured by the Hazard Powder Company, at Hazard ville, Connecticut; Canister Powder.

pound each

Fair Lawn Mill's Rifle in round Canisters of 1
pound each

25 1 pound, oval Canisters, in a Case.
50 ½ pounds, oval Canisters, in a Case.
50 1 pound, round Canisters, in a Case.

Size, Nos. 1, 2 and 3 grain, in negs, og pounds.

Duck Shooting, Nos. 1, 2, 3, 4 and 5 grain, in Kegs, 12% pounds.

Duck Shooting, Nos. 1, 2, 3, 4 and 5 grain, in an illustrated supplement of seasonable goods, among which we notice an assortment of Furniture Casters, of their own manufacture, which they guarantee equal to any made, Iron Frame and Axle Pulleys, Iron and Wood Well Curbs; Corn Shellers, Cider Mills, Feed Cutters, &c., &c. Among the seasonable goods illustrated, and for which net prices are quoted, are the following:

Geneva Hand Fluters (White Metal). per doz. \$15.00 Knox Fluting Machines, with 12, 15, 18 or 22 Flutes, 6 in. Rolls.

pre pair, 285

Mining and Blasting Powder, FFF, F, F, C, Seasonable goods, and Seas Shooting. Nos. 1, 2, 3, 4 and 5 grain, in Kegs, 6½ pounds.

New York, 12, 3, 4 and 5 grain, in Kegs, 6½ pounds.

New York, 12, 3, 4 and 5 grain, in Kegs, 6½ pounds.

New York, 12, 3, 4 and 5 grain, in Kegs, 6½ pounds.

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New York, 12, 3, 4 and 5 grain, in Kegs, 6½ pounds.

New York, 12, 3, 4 and 5 grain, in Kegs, 5½ pounds.

New York, 12, 3, 4 and 5 grain, in Kegs, 5½ pounds.

New York, 12, 3, 4 and 5 grain, in Kegs, 5½ pounds.

New York, 12, 3, 4 and 5 grain, in Kegs, 5½ pounds.

New York, 12, 3, 4 and 5 grain, in Kegs, 5½ pounds.

New York, 12, 3, 4 and 5 grain, 3.65

J. Austin & Co., No. 168 Fulton street, have issued the following reduced price list for

way. In addition to Bit Braces, Parallel Vises, and other specialties in mechanical Tools, for which this house has been long and favorably known, it is their intention to keep in stock a full line of Amateur Wood Workers Tools and Supplies, including Hand and Foot-Power Saws, Carving Tools, Tool Chests, Tool Holders, Wood of all kinds, designs of every style, and a full stock of Saw Blades of their own importation, so that every want in that line can be filled under one order.

That the old trade mark of D. R. Barton & Co. has not lost its attraction for the trade is proved by the fact that Mack & Co., of Rochester, have been running all winter on full time, and in spite of the dull times have had only one agent traveling. We are glad to know that the present manufacturers maintain the high quality for which the trade mark has always been a guarantee, and that the style and finish of their goods are very fine. Their prices remain the same as last year.

Geo. Sanderson, importer of Steel and Files will remove about May 1st from 55 to 102 John

BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.)

WEDNESDAY, April 19, 1876, Scotch Pig.-But very little business has been done, and prices are weak. The following are makers' quotations:

Gartsherrie																		
Cottness No																		
Glengarnock	N	0.	1		 				۰	0	٠.		۰	 				. 6
Eglinton No	. 1						 					_		 	 			- 5

Manufactured Iron and Rails are without change to note.

IRON.

American Pig.-There is no change in the condition of the market. In the matter of all agree that a first class buyer can get concessions either in price or time. Transactions are small, and we hear of none worth reporting. We continue our quotation without change: No. 1 Foundry, \$22 @ \$23; No. 2 bination people find it difficult to effect any Foundry, \$20 @ \$21; Gray Forge, \$19 @ \$20.

Scotch Pig.-The market continues without material change, the importations going into consumption and being quite large enough for the demand. We note the sale of 100 tons Coltness at \$32; 150 Glengarnock at \$30; 200 tons Eglinton, part at \$28.50 and part at \$29. We quote: Coltness, \$32; Glengarnock, \$30; Gartsherrie, \$31; Eglinton, \$28 50 @ \$29.

Rails. - There are no features of note. Although there has been considerable inquiry, transactions have been limited. We note the sale of 800 tons Bethlehem, delivered here at \$45. We quote \$40 @ \$45 at mill, according to location and character.

Old Rails .- The absence of transaction makes the price still uncertain. The Grand Trunk Railway invites tenders up to the 15th of May for the purchase of Old Iron Rails, delivered as follows: about 7000 tons at Toronto Sarnia, Detroit Junction or Buffalo; about 1000 tons at Montreal or Point Levi, opposite Quebec; about 3000 tons at Portland.

Scrap.-The market has been quiet. We note the sale of 200 tons No. 1 Wrought Scrap from yard at \$29, 30 days, delivered to vessel in this port.

METALS

Copper.-The market has been quiet but steady, between 400,000 and 500,000 pounds Lake Superior changing hands on the spot at from 22%c. @ 22%c., which is the closing quotation. We quote Baltimore, nominally, 22%c. In futures nothing has transpired. During the past week six steamers leaving for Europe took between them 946 casks of copper to Hamburg, London, Rotterdam, Bremen, Antwerp and Havre, together 1,235,500 pounds. London has been on the rise, thus Best Selected during the week advanced £3, to £85, 10/, and Chili Bars £1, to £78. 10/. Later mail advises are to hand from London to the 8th instant, according to which it will be seen that on leaving out Australian afloat, advised by mail, 3240 tons, and Chili afloat, advised by cable, 4200 tons, the visible supply in England and France on the 1st inst. was 31,351 tons against 32,568 and 36,918 the previous two years. The deliveries during the first quarter of the current year in those countries were 13,112 against 14,673 and 15,249. Chili Bars, April 1, were worth £77 against £80, £75, £92, and £97 the previous four years. These figures, it cannot be deried, are favorable, and well calculated to inspire confidence in the future, unless something extraordinary should happen, such as a general European war, which seems to be apprehended by many. The circumstance that Best Selected is now also advancing on the other side shows that actual consumption is at work to improve prices, and not mere speculation. New Sheathing is firm at 31c., and Bolts and Beaziers, 32c.; Bronze and Yellow Metal Sheathing, 21c.; and Yellow Metal Bolts, 28c., cash.

Tin.-The statistical position of this metal in Europe has not improved, and the consequence is a continued decline, the ex tremely low figure of £71, 10 for Straits as per cable quotation, against £73 a to the London reports of April 8th, was on the

rumors of large transactions, both on the spot margin be left, unless there is a break someto forctell what the upshot will be. In Europe, is obtainable at figures lower than the comat all events, no very sanguine views regarding bination prices. Buyers seem to be discountthe immediate future of the metal seem to prevail, for it has been allowed to drop to a figure ing up. The combination has much stronger Tin for ten years past. We quote Straits 16%c. @ 17c., gold; English Refined, 17c.; English 22c., all gold, large lines. The Tin Plate market has remained apathetic, and we nearly repeat the quotations of our last report, gold, per box, large lots, ordinary brands: Charcoal ciently large to unsettle the market and most favorable effect is expected to result from this curtailment of production. Since a measure of the kind was deemed imperative, it tailed by a break, the temptations to cut prices, would have been more advisable, we believe, to favor agents, or in various ways to affect the to have made the short production for time still greater, say 500,000 boxes.

Lead--Was less firm at London, and, on the contrary, evincing a most favorable tendency in Germany at latest accounts, on the spring trade heavy fall in prices would be the result. having opened after a protracted and unusually severe winter. Here the Lead trade continues as dragging as ever, and the prospect is not an encouraging one at the present moment. The sales have, nevertheless, amounted to some 200 tons at 6.25c. @ 6.35c., gold, for Common Domestic. tations. The Consolidation Company is at work The market closes within this range, Common Western being offered here at 61/4c., gold. In town. Vessels are plenty and freights have a foreign nothing has transpired, the plumbing downward tendency, but with, as yet, no trade having proved a great disappointment changes in quotations. The low freights naturonce more. We shall have to be resigned, we ally stimulates trade at this point. We quote presume, to a pretty dull state of affairs during the warmer months now drawing near, and in the midst of the stagnation Common Domestic may recede to a much lower figure, unless the one or the other large consumer should transprices there is agood deal of uncertainty; but fer the stock from speculators' hands to his own. We quote: Bar, 9c.; Sheet, 91/2c., and Pipe, 10c.; discount to the trade 10 per cent.

Spelter and Zinc .- Domestic Spelter is devoid of interest just at present; the comsales as long as some stray cutside parties are still to be met with, of whom lots may be obtained at 7%c., currency, while the combined producers insist upon 8c., currency, less I per cent. Of foreign there are now but 40 tons W. H. left, for which 7.80c., gold, is the ask ing price; nothing has transpired in this kind, while Domestic moves off in but moderate quantities, pending a revival in the brass man ufacturing industry. Accounts are to hand from the Continent to the 6th instant, when a better trade was being done, with good hope for the future.

Sheet Zinc .- Is in moderate request a 8%c. @ 8%c., gold.

Antimony .- This article is high and re markably strong in Europe, where the ore is

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending April 18, 1876:

Hardware.	Wheeler E. S. & Co. Pig, tons, 100
Dobon Hormann & Co	Bare, 94
Boker Hermann & Co.	Order.
Mdse. pkgs., 15	Pig, tons, 400
Degraw, Aymer & Co.	Ore, tons, 239
Chains, lengths, 3	Sheet, bxs., 57
Chains, cks., 1	
Field Alfred & Co.	Steel.
Casks, 4	Frith Edward,
Hogsheads, 1	Cases, 31
Scythes, bdls., 3	Bundies, 5
Frasse P. A. & Co.	Bars, 4
Cases, 1 Harmar Wm. & Co.	Haight J. Lloyd,
Harmar Wm. & Co.	Rundles 940
Packages, 8	Bundles, 249
Huntington, Hopkins &	Naylor & Co.
Co.	Tires, cast, 8
Cases, 3	Cases, 51
Laughland & Co.	Bundles, 40
Wire, pkgs., 4	Bars, 28
l'oyon F. M.	Prosser Thos. & Sons,
Const. M.	Tire forgings, 4
Cases, 2 Van Wart & McCov,	Bars, 161
van wart & mccov,	Order.
Mdse. pkgs., 11	Bundles, 233
Wiebusch & Hilger Mfg.	Casks, 8
Co.	
Mdse. pkgs., 23	Metals.
Order.	Byrne Joseph & Co.
Grindstones, 125	Tin plates, bxs., 200
Files, cks., 8	Cort N. L. & Co.
	Tin plates, bxs., 300
Iron.	Darrell & Co.
	Lead, bbls., 23 Hayward R. M.
Brown, Shipley & Co.	Hayward R. M.
Coi)s. 1022	Scrap, pkgs., 4
Darrell & Co.	Jex Wm. & Co.
Wrought, cks., 2;	Scrap, copper, cs., 1;
bbls., 15	cks., 1
Pieces, 26	Naylor & Co.
Knees 1	Tin plates has 1007
Knees, 1 Axles, 2	Tin plates, bxs., 1067 Pacific Mail Steemship
Iowe Machine Co.	Co.
Bundles, 96	
Hazard T. D.	Copper, bxs., 8
	Copper, bbls., 6 Yellow metal, bbls.,
Pig, tons, 50	x enow metal, bblr.,
Scrap, tons, 20	DI -1 D -1
layward R. M.	Phelps, Dodge & Co.
Scrap, lots, 1	Zinc, cks., 100
aughland & Co.	Tin plates, bxs 3739 Black taggers, bxs.,
tray undue, bure., 45	Black taggers, bxs.,
ditander Nils,	253
Bars, 324	Antimony, regulus,
Coils, 88	cks., 50
Naylor & Co.	Windmuller L. & Roelker
Bars, 11,994	Zuc sheets, cks., 23
Phelps, Dodge & Co.	Order.
Bundles, 99	Tin plates, bxs., 3909
Page E. & Co.	Tin and terne plates,
Bars, 21	bxs., 3779

Trade this week is very dull in the Anthracite market, and the prospect does not look having been reached to day, at London, favorable for immediate improvement. The combination is reported as holding strictly to thing in that line, and the prespect of lower week ago. Slugapore wires, \$21.25. The visi- the quoted prices, but outsiders are cutting rates deters many from buying. The Rag and cheerful feeling prevails in consequence. Once ble supply in England and Holland, according under the circular rates, and there seems to be enough of this to unsettle the market and Cotton Canvas was sold this week for 6c. a 1st instant 14,762 tons, against 14,306 and 8932 make it difficult to sell at the regular quota-pound, having fallen off half a cent. Book card rates, they will buy just as much on a the previous two years, while the price stood tions. We hear reports that company coal £73 for Straits, against £80 and £87 in 1875 is being sold at, and even below dealers' and 1874. The deliveries during the rates. This would seem to show that Paper is not wanted at any price. Other artifirst quarter of the current year in those there has been a break somewhere, and were 5166 tons, against 4339 that there was a lack of good faith on the following as the current purchasing rates: and 3960. In our own market these accounts part of the companies. On tracing these

and to arrive, are not wanting. It is difficult where. The fact, however, remains that coal ing the probabilities of the combination breaklower than anything that has been witnessed in inducements to live strictly up to its agree— Tin for ten years past. We quote Straits 16%c. ments than many people imagine. Once broken, the companies would experience much Common, 16%c. @ 16%c., and Banca, 21%c. @ heavier losses than can result to them from present dullness of business, or a strict adhesion to the prices named in the circulars. The out-Bright, \$7:12½ @ \$7:37½; do. Ternes, \$6:75 @ keep actual selling prices down, but \$7; Coke Tin, \$3:25, and do. Ternes, \$6. The as the demand increases, and these sources reduction in the English make of Tin Plates is of supply become insufficient, circular prices estimated to amount to 250,000 boxes, and a will probably be adhered to. It must not be supposed, however, that we consider the combinstion very stable. In spite of the losses en sale of coal on terms practically below the circular rates, are very great, and we should not be in the least surprised if in this way the combination was at last brought to an end. A

> In the Bituminous trade there is very little doing. The miners of the American, New Cenpanies, are out on a strike. The companies are consequently doing nothing and make no quo and there is a good demand for coal at George

In barges at New York.		****			ø	8·90 5·50
					0	0.00
town	f. o.	b. 3	alti-		0	8-65
Consolidation Coal Co.	f. o. b.	, Geo	rge-	**	A)	
Morrisdale, Wigtons					8	5.00
Broad Top, at South Ar					0	4-75
Despard, at Baltimore				**	0	
Membrik Otter ar	61			**	0	
Kittaning f. o. b., Balti	more.			4.22	6	4.35
West Virginia, at Baiti	more			\$5.25 4.50	80	\$5.75 6.00
Cumberland, at George						
as follows: Cumberland, at George						

d		L	8	9	2	35	5	
B	Lackaw'na & Scrant'n at Hobok'n & Weehawk'n	4.80	4.750	4.00	4.00	F . NO	4.00	
18	Pittston at Newburg							
-2	Wilkesb're at Port John-				-			
1,	ston	4.60	4.70	4.80	4.90	5.50	4.70	
	Plymouth			4.80	5.00	5.60	4.80	
e	Susanehanna Coal Co. at						-	
1-	Amboy	4.60	4.70	4.80	5.00	5:50	4.80	
	Kingston at Hoboken	4.60	4.70	4.80	4.90	5.50	4.70	
d	Black Diamond at Perth					-		
a	Amboy	4.60	4.70	4.80	4.90	\$.90	4.70	
	LEHIGH COALS.							
8	Old Company at Port							
	Johnston	5.10		4.90	4.90	5.20	4.80	
	Old Company's Room							
ıt	Run at Port Johnston.	5.10		4.90	4.90	5.20	4.80	
-	Sugar Loaf, Hoboken and							
	Amboy	5.10		4:90	4:90	5.20	4.80	
B-	Lehigh Coal Exchange at							
is	Port Johnston	5.10		4 90	4:90	5.20	4.80	
	Honey Brook Lehigh			4.90				
100	m n n n n n n n n n n n n n n n n n n n	-					-	

PREIGHTS-PER TON OF 2240 LBS.

The

PORTS.	From Elizabethport, Por Johnson, Bouth Amboy Hoboken & Weehawk'n	From Philadelphia.	From Baltamore.	From Georgetown.
Augusta, Me				
Albany			\$1.75	
Amesbury, Mass	h1.00		2.00	****
Bangor, Me	1.00	***	2.00	\$1.65
Baltimore		****	1 00	&1 00
Boston, Mass	1.00	1:40	1:45	1.60
Bridgeport, Ct Bristol, R. I.	70		1.40	1.40
Bristol, R. I.	1.00	****	****	****
Cambridgep't, Mass Derby	1 00			
Dighton			1.40	1.50
East Cambridge	. *1.00	****		
Fall River		1.25	1.40	1.40
Hackensack			****	****
Hartford.				****
Hoboken			1.12	1.30
Hudson			1.20	1:40
Jersey City Lynn, Mass	1.10		1.12	1.30
Middletown		****	****	****
Mystic		***		
Newark			1.20	2000
New Bedford	. 85		1.40	1.40
Newburyport New Haven			1.65	1.40
New London			1.40	1.40
Newport	. 85	****	****	
New York	. '40	.82	1.25	1.30
Norwalk		****	1.40	****
Norwich			1 40	****
Philadelphia			.90	****
Portland	1.00		1.45	1:60
Portsmouth, N. H	1.10	1.25	1.40	1.70
Providence Poughkeepsie, N. Y	. 00	1 29	1.40	1.20
Rockport,		****	****	A 90
Suco	4 2522	** *	****	
Sag Harbor		****	1.00	2000
Salem, Mass Salisbury Pt., Mass	1.00	****	1.60	1.60
Stamford		***	****	****
Stonington	. '60		****	***
Taunton				
Warren, R. I.	. '65	****	****	****
Wareham		****	1:45	1.70
Weymouth				1.65
Wilmington, N. C				1.25

* 3c. per bridge extra.

OLD METALS, PAPER STECK, &c. The Old Metal market is still without any activity. There is no special demand for any-Paper Stock markets are dull and declining. and Newspaper Stock is in little request, and prices have a downward tendency. Manila cles present no material change. We quote the

and 3960. In our own market these accounts have bad no influence; on the contrary, the market at the close is reported firmer even. There seem to be contending interests in our market between some prominent operators, and

ton; Stove Plate, \$9 per ton; Machinery, do.,

ton; Stove Plate, \$9 per ton; Baselines, \$12 per ton.

Rags, &c. —Canvas, Linen, 4%c. @ 5%c.; do.
Cotton, No 1, 5%c.; No. 2, 2%c.; White,
No. 1, 5%c.; No. 2, 4c.; Colored, do., 2c. @
2%c.; Mixed, Woolen, 2c. @ 3c.; Soft, do.,
5c. @ 5%c.; Gunny Bagging, 1%c.; Jute Butta,
1%c. @ 2c.; Kentucky Bagging, 3c.; Book
Stock, 3c.; Nowspaper Stock, 3c.; Waste Paper and Scraps, 1%c.; Kentucky Bale Rope,
4c.; Oakur Junk, No. 1, 4% @ 5c.; do. No.
2, 3c.; Tarred Shaking, 1c. @ 1%c.; Grass
Rope. 2%c, @ 3c.

PHILADELPHIA.

Office of The Iron Ags, 220 South Fourth St., PHILADELPHIA, April 18, 1876. Pig Iron.-There is a somewhat steadier tone to the market than at the date of our last report, although prices are essentially the same. Quotations are almost as various as the brands, but the prevailing price seems to be \$22.50 to \$23 for No. 1 Foundry Irons. Sales of the week are upward of 5000 tons, about half of which were made by the Crane Iron Co., 2000 tons being Bessemer Iron on private terms. There is quite a scarcity of No. 2 and Gray Forge Irons, and these descriptions are very firm. We quote No. 1 Foundry at \$22 to \$28; No. 2 Foundry, \$20 to \$21; Gray Forge, \$20 to \$22, and Mcttled at \$19.

BLOOMS .- A fair demand at the following prices: Charcoal Scrap Blooms, \$47; Charcoal Ore, do., \$41 to \$42; Charcoal Billets, of supe-

absence of actual transactions, we quote as before: Steel Rails at mills, \$60 to \$62; and Iron Rails, \$40 to \$42.

OLD RAILS.—The offerings are not large, and prices pretty firm; sales have been made within the past few days as low as \$22, and probably \$23 to \$23 would fairly represent the market, but one of our and probably \$22 to \$23 would fairly represent the market, but one of our largest corporations advise us of sales of 1000 The market remains about as last reported, with no apparent indications on which to base predictions of any immediate change. Prices delivered in Pittsburgh, at \$24.50.

SCRAP.—There is a fair demand, and offer ings are all taken at about \$16 to \$19 for Cast, and \$26 to \$29 for Wrought.

NAMS.-There is a firm feeling, and prices are steady at \$2.75, and holders not anxions to push sales in anticipation of a reduced pro-

TIN PLATES.—The murket is fairly active, but holders are not anxious sellers at the present low rates. We quote as follows: I. C., 10x14, \$8.50 to \$9; I. X., 10x14, \$10.75 to \$11.25; Am. Scotch, No. 1....... 24.00 @ 25.00—4 mos. Best Charcoal, leaded, 28x20, \$16.50 to \$17; other good brands, \$15 to \$16; good fair, \$14.50 to \$15; Bright Tin, for cans, &c., \$7 to \$7.25; good Bright Tin, do., \$6.75 to \$7.25; Coke, leaded, 14x20, \$6.25 to \$7.

OLD METALS.-The following are the current quotations of to-day: Heavy Old Copper, 18c. to 19c.; Light Tinned Copper, 16c. to 17c.; Copper B titoms, 15c.; Heavy Red Brass, 14½c.; Light Red Brass, 14c.; Heavy Yellow Brass, 13c.; Light Yellow Brass, 12c.; Heavy Clean Pipe Lead, 6c.; Junk Lead, 5½c.; Tea Lead, Light Paper, 6c.; Tea Lead Heavy Paper, 5c.; New Zinc Chippings, 5c.; Old Sheet Zinc, 4½c.; Yellow Brass Turnings, 8c. to 10c.; Red Brass Turnings, 9c. to 10c.; Red Brass Turnings, 9c.; Page Turnings, 9c. to 10c.; Red Brass Turnings, 9c.; Page Turning Yellow Brass Turnings, 8c. to 10c.; Red Brass Turnings, 10c. to 12c.; Plumbers' Lead Joints, 61/8c.

PITTSBURGH.

PITTSBURGH, April 18, 1876. Pie Iron.—There has been considerable activity during the past week, the volume of business having been unusually large, and while for a good mill Iron a much firmer feeling has been developed, as yet there has been no quotable advance in prices. The inquiry is chiefly for the best brands, and while these, in consequence, are held with increased firmness, common Iron is very dull, and, if anything, weaker, as there is more of it offering than there is a demand for. Iccluded in the sales during the week were two lots of 1000 tons each of good Gray Forge at \$22, 4 mos., and the market for stock of this character is firm at the figure in question. One mill reports having contracted for some 4000 tons quite re-A good deal of the trading is done direct between the producer and consumer, in order to save the cost of commissions, and the consequence is there is a good deal of Iron bought here which is not reported. Common to fair mill Irons selling at \$20 to \$21, 4 mos. Foundry Irons continue quiet, but it begins to look as if prices for these, too, had touched hard pan.

MANUFACTURED IRON.-There is a fair degree of activity, and the card is reported as being faithfully adhered to; it was apprehended that cutting would again be resorted to, but thus far these apprehensions have not been realized. Trade in the West is in better shape now than it has been for a year or more past, and a more buyers become thoroughly convinced that manufacturers are determined to adhere to basis of 21/c., 60 days, for bars, as they would have done at two cents.

NAILS.—The market is firm at the recent sharp advance. The factories hereabouts have a'l they can do, and the indications are very

quotations: Horse Shoes, 41/4c. per lb., cash; Mule Shoes, 51/c., cash.
STEEL RAILS.—No recent sales here, but mills

are well supplied with orders; quoted at \$59 te \$60 per cash, delivered on cars at works. are firmer, that is, there is not the same dispo-

STEEL.—The Steel mills are all busy and prices sition to cut that there has been, which is attributed to the stiffening up in Iron, and there is a better feeling in consequence. It looks as if the mills were destined to have all they can do for some time to come

APRIL 15 .- Pig has had a fair peddling trade at prices ranging from \$24.50 to \$26 for No. 1, according to the credit of the buyer. A reasonable report is upon the market that 200 tons No. 1 have been landed in a Lowell foundry yard at \$24.25, net cash; in fact, New York parties are canvassing the interior and seeking to break our Boston market by just such prices as the above. Bar moves along in a quiet, steady way at \$49. No one seems to be stocking up, and yet racks begin to look as though assortments were very much broken. Two mill men have been looking over the market the past week, but as yet have not taken any orders. Boiler Plates coutinue to cell in a steady ore, do., \$41 to \$42; Charcoal Billets, of superior quality, from \$60 to \$62; and Bars for converting into steel, made of best grade Champlain Iron, \$75.

Bar Iron.—There is quite an improved demand, and prices are firm at our late quotations. Most of the mills are working up to their full capacity, and some are running doubleturn and working a full force of hands, and though no large contracts have transpired, the hand-to-mouth demand is sufficiently large to absorb all they can turn out. We quote 2 35c, and firm.

Rails.—The demand is not so active, and we hear of no sales of importance, but the mills are fully employed, and have business on hand sufficient to last them to midsummer. In the absence of actual transactions, we quote as clirate, and contract the first short of an active and sufficient to last them to midsummer. In the absence of actual transactions, we quote as clirates, 16%, to 17c.: Bance, 22e.: Refined Engling in the same advanced to \$8, currency, for both Foreign and Domestic, New York deliveries, Boston holders asking \$505. The Pipe makers are understood to have advanced prices at their meeting on Tuesday 10 per cent. again. Common Sheet Iron bas had a slight start at 3½c. to 4½c. Steel is quiet, the jobing and manufacturing demand being excessively trivial. Prices are steady. Copper has a better tone, without much improvement in business. Lots to arrive are asking 22½c., and spot lots 23c. to 23½c. For manufactured we quote: New Sheathing, 30c.; Botts and Braziers, 31c.; Yellow Metal Bolts, 20c, to 29c. Lead is quiet and steady. Receipts are again small; stocks only moderate. We quote Pipe, 6½c.; Bar Lead, 9½c., leas usual trade or 10 per cent. discount. Antimony continues within the combination, and quotes at 15c., gold, firm. Spelter has been advanced to \$8, currency, for both Foreign and Domestic, New York deliveries, Boston holders asking \$505. Tils is moving with more spirit, prices quoting nominally firmer. We quote 25c. way at Sc., and Rivets at 5%c. to 5%c. The asking \$500. 256 is moving with more spirit, prices quoting nominally firmer. We quote Straits, 16%c. to 17c.; Banca, 22c.; Refined English, 17c., gold. We quote Plates: Charcoal I. C., \$7:25; Coke, \$6*20 to \$6*50; and Terne at \$6.50 to \$7:50, gold.—Com. Bulletin.

CINCINNATI.

remain as last reported:		
CHARCOAL		
Hanging Rock No. 1 P ton.	23.00 @	-4 mos.
Forge	21.00 @ 2	2.00 -4 mos.
Southern Brands No. 1 Forge		-4 mos.
Virginia No. 1	24.00 @	-4 mos.
" Forge	31.00 W	-4 mos.
STONE COAL A? D		
Hanging Rock No. 1 P ton.		
Red Short No. 1	26.00 @ 2	7·00-4 mos.

COLD BLAST. Hanging Rock Car Wheel W ts. \$40.00 @ 45.00 4 mos. Missouri " 35-00 @ 40-00—4 mos.
Southern Br'ds " 30-00 @ 40-00—4 mos.
Machinery and Forge. 30-00 @ 35-00 —4 mos.
Blooms ——1 mos.

LOUISVILLE.

				LAST CHAI			
No	. 1 F'dr	y, fro	m Har	ging Roo	k Ores.	\$25.00 @	26.0
66	1 Mill		6.6	44	64	- 3	
88			om A	labama,	Georgia		, –
65	and To	ennes	see Or	labama,		23.00 @	24-0
	and To	ennes	see Or	es	Georgia	33.00 @	93-0
64	1 Mill	fron	Alaba	ma, Geo	rera and	44.00 (4)	, 20 0
	Tenne	sace !	Ores	*******		21.00 @	33.00
	E	OT B	LAST ST	CONE COA	L AND CO	KE.	
No.	1 F'dr	v. fre	m Har	ging Roc	k Ores.	128-00 @	94.00
64	9 44	.,	- 61	46	64	22 00 @	
8.6	1 Mill,		66	44	46	21.00 @	22.00
84	1 F'dr	y, fr	om A	labama,	Georgia		
	and To	ennes	see Or	es		23.00 @	24-00
84	2 F'dr	v. fr	om A	labama,	Georgia		
	and To	ennes	see Or	es		22.00 @	23:00
8.6	1 Mill.	, from	n Alabi	ama, Geo	rgia and		
	Tenne	ssee	Ores				
No.	1 F dr	y, fro	m Mie	souri Or		94.00 @	
6.6	5 "		66	44	*****	24.00 @	
4.	1 Mill,		*6	46	****	25-00 @	26.00
			COLD B	LAST CHA	BCOAL.		
				23 1-	Once		40.04
Car	Wheel	from	Hang	ING KOCK		2027-1303-69	
Car	Wheel	from				35.00 @	
Car	Wheel	from	Tenn	essee Ore	28	\$8.00 @	
Car	6.6	98	Tenn		28		80-00

ST. LOUIS.

Messrs. Spooner & Collins, iron commission agents, 409 North Third street, St. Louis, under date of April 13, report the Iron market as follows: We note but little improvement in our market since our last report. Those of our foundries that had closed when last we wrote have resumed again, but are doing little. Prices unchanged; demand light. We quote on 4 months' time:

Mo.	Stone C	oal, N	0. 1	F'dry	\$25.00	0	26:0	0-4	mos.
6.0	4.6	N	0. 2	F'dry	94:00	0	25:0	0_4	mos
6.6	66	6	rav	Mill	94:00	a	98-0	0_4	mos.
8.6	Charco	al No	1 F	'dev		a	98.0	0 4	mos.
- 64	94			dry		8	94-0	0 4	mos.
86	5.6	Gre	w M	in		a	94-0	0 4	mos.
Teny	. Charc	oal N	1 1	Fidee		(a)	95-0	0 4	mos.
86	i. Cimero			dry		0	94:0	0 4	mos.
.66	66	G	- A I	Mill		200	94-0	0-4	mos.
370	Ceke Ir					9	24.0	0 4	mos.
10	Cont II	OR ME	0 0	F'dry.		C.	20.0	0-4	mos.
65	9.6			Mill.		9	20.0	0-4	mos.
II D	. Charce					00	24.0	0-4	mos.
H. R.	. Charce					9	27.0	0-4	mos.
		740	. 31	dry	81.00	9	50.0x	1-4	mos.
H. R.			ay A	in	. 34.00	100	20.0	0-4	2308
MARK	illon Ir	901. A.	*10.		. 81'00	@	93.0	0-4	mos.
64		D,	NO.	1	. 29'00	0	90.0	0-4	mos.
		744			. 27700	9	28.0	0-4	mos.
Cold	Biast C	ar Wh	eel,	Мо	82.00	0	40.0	0-4	mos.
84		40		Tenn	. 83.00	0	85.0	0-4	mos.
44		41		Ala.	33.00	0	85.0	c-4	mos.
-				Tenn Ala. H.ng-					
ing	Rock.		00.00		04 00	0	83.0	0-4	mos.
Mo.	Charcoa	l Bloc	ms.		60.00	0	70:00	1	mos.
60	Scrap Charcos	86			55.00	0	60.00	1	mos.
Mo.	Charcon	d Ha	m m	ered					
Bil	lets				75 00	0	80.00	1-4	mos.
Asso	rted Bar	Iron				0	2.31	-90	dys.
No. 1	Wroug	ht Sc	rap		1.10	a	1:25	-ca	sh.
Heav	Wroug y Cast t Cast				'75	0	*98	-ca	sh.
Light	Cast	44			.20	0	*60)-cı	ish.

RICHMOND.

Mr. Asa SNYDER, Iron Merchant and Furnace Agent, Richmond, Va., writes as follows under date of April 15: The recent improvement in prices is fully maintained. Sales are quite ac-tive, exceeding 400 tons the past week. Receipts continue lights.

CLEVELAND.

Messrs. C. E. BINGHAM & Co., 25 West Main street, under date of April 17, quote the Iron market as follows. 4 mos. time:

marker we for			
	FOUNDRY		
No. 1 Lake Supe	erior Charcos	l	\$27.50-4 m.
No. 9			26.50-4 m.
No. 1 Anthracite	B		25·00-4 m.
No. 9 4			23.00-4 m.
No. 1 Bituminos	0.00		25.00-4 m.
No. 1, Cherry V	alley Am Sc	atch	27 50-4 m
B-1	MILEY ZAME, CO.		25:53-4 m.
mm - 45 4.5	6.6		04 - EO A may
No. 2, No. 1 Massillon			00:50 A m
No. 1 Massillon			20.00-4 III
B-1			24'0')-4 m.
No. 2			23'50-4 m
CAR WE	HEEL AND MA	LLEABLE IR	ON.
No. 8 Lake Supe	erior Charcos	1	\$26.50-4 m.
No. 4	69		27:50-4 m.
Nos. 5 & 6"	66		27:50-4 m
MON' 2 OF 0			W1 00 4 ML
	BESSEMER	IRON.	
Nos. 1 and 2 La	ke Superior (harcoal	\$27.50-4 m

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of April 18: Trade has ruled slightly improved the past week, with some Southern and Southwestern merchants in the market, but all purchases are made for early wants, and limited in

FRANCE.

FOREIGN.

POREIGN.

PARIS, April 2, 1876.—Metals.—During the week under review consumers of metals have continued to adhere to the extremely conservative policy which has been the rule in the European markets throughout the winter time, and as there is still very little speculative inquiry, matters have remained remarkably quiet. The caution displayed by the trade is not confined to metals. In other branches the identical policy is observable, and the explanation for it has to be searched for in the commercial and industrial events of the past two or three years. Wherever over-production has manifestly been greatest, consumers have taken a standall the more determined to correct the orbiby confining their prochases to the strictly indispensable, and producers have thus been compelled other to confine the past when the orbit producers have thus been compelled other to some time plant, and will produce flects of a most animary kind. Matters enoughed the work for some time plant, and will produce flects of a most animary kind. Matters will be replaced on a sound footing. These remarks to correct themselves, and business will be replaced on a sound footing. These remarks to control themselves, and business will be replaced on a sound footing. These remarks will apply to all civilized Europealist, but especially to France. Copper.—The Wallaroo sale at London, which had been expected with such curiosity, has come off, and though the price realized may not accuse to the confessed that it was pretty marly as a come off, and though the price realized may not accused to a similar auctions, and so long as will make little difference, for Copper from the West Coast will always rule the markets. We have been a little steader here at the following quotations: Chili Bars, 200 francs; common do., 197'05; ingots, 210; English Tough Cake, 210, and pure Corocor Ore, 206. Havre has remained quiet, and first brands chili are worth nominal 20125 to 302'50 there; good current do., 198'710 francs; and ill undersome generally favorable change wh

(Revue Universelle) BRUSSELS, April 2, 1876.—Iron.—At the opening of tenders to the government lines, which took place lately for furnishing 90 freight cars of 20 tons each, one of the German manufacturers from the Rhenish provinces was awarded the job, being the lowest

bidder by 10 per cent., and his cars have, moreover, to pay a duty of 10 per cent. The situation in Belgium slowly improves; a good many orders are received by our rolling mills, and Merchant Iron in particular is decidedly in better request. A good many blast furnaces are spoken of as likely to be soon blown in. There is now an increase of work in most quarters, but prices are excessively low. Soon, however, we hope consumption will outstrip production. Coal.—During the past week the position of the Coal market has undergone but little change; meanwhile the floods have been subsiding, and navigation will soon be actively resumed after having been a long time interrupted. The slight spurt in the Iron trade has as yet exercised no appreciable effect on Coal prices; but we can hardly expect to recover in an instant from a stagnation which had become so deep rooted. Aside from this we are on the eve of wonted dullness in the Coal trade, and on looking round we find that our next door neighbors are no better off. At Bochum the Coal companies are clearing about cost, but they seem determined rather to stop work than sell for less. All the Coal producing countries of Europe will have to be resigned to a quiet state of affairs till the fall reopening. Prices seem to have reached a minimum, but according to the quantities involved in a contract prices will vary. Purchasers still have the advantage, and whenever a large lot is wanted, either on the spot or on future delivery, the producing concessions accordingly.

GERMANY.

(Borsenhalle).

GERMANY.

(Borsenhalle).

Hamburgu, April 1, 18:6.—Metals.—Consumers, though not heavily stocked, are still very slow in coming forward for the replenishing of supplies. This is due much less, we believe, to the impression that prices are too high, than to the general disinclination prevalent among them to lock up money in the shape of surplus stock. This policy is, is a great measure, also adopted by the large dealers at, the ports, who prefer that the stocks should be carried by the importing firms. As the general tendency of values in the metal trade has been a downward one for some time past, these consumers and dealers have been following a plan which has saved them some money, and they do not seem inclined to depart from it just yet. Copper, netwithstending the rather improved outlook in England, is slow in giving signe of buoyancy in our midst. At Berlin good qualities of English and Australian remain without change at 89 to 91 marks the 50 kilos. Stettin is sustained at about 99. Tin.—When the withdrawal of the bulk of Banca in Holland was announced, it soon came to be known that this was a move on the part of the Trading Society in accordance with a new policy adopted by the same, and, therefore, rather strengthened the feeling here and at Berlin. We have, nevertheless, remained quiet, and we quote Banca at Berlin and here. 87 to to 8759; and English, 81:50 to 82 marks. Lead is gaining in strength. While we are inactive and nominal, Berlin remains steady at 23 to 23:90 marks for the various sorts. Spetter has increased in firmness. At Berlin it commands from 25:20 to 26:20 marks, Breslau nominally maintaining the figure of 24 marks, with hardly anything doing.

BOLLAND

ROLLAND.

(Kock & Vuerboom).

ROTTERDAM, April 4, 1876.—Tin.—Out of the 24.762 slabs Banca offered at auction by the Trading Society, 38th ultimo, but 7800 were sold at 50 guilders, the baiance being withdrawn. Since then the market is quiet, no salez having been effected. Stock on warrants with the Trading Society, 1st instant, 82,700 slabs Banca against 117,277, and 3053 Billiton in 1875. Deliveries since January 1, 20,157 Banca and 100 Billiton against 27,759 and 100 in 1875. Aftoat by saling vessels from Banca, 8100 piculs against 1500 in 1875. Private stock of Billiton in first hande, 28,948 slabs.

BRISBANE, Queens'and, January 30, 1876.—Tin.—
The receipts by rail have come to hand but slowly since the commencement of the year, amounting to 466 tons Stream Tin and Ingots, showing an increase of 40 tons on the previous month, and about 30 on the same month last year, being but 20 tons less than December, 1874. The receipts for the last quarter of 1874. The joint tin fields of this district will, in all likelihood, show as large a falling off in the past half year as in the first half of 1875. The low price now ruling has already had a considerable effect on the production of the Stanthorpe field. All poor ground has long since been abundoned, but the rich ground is in many places turning out better and better. All sorts of plans have been adopted to cheapen the production, and Stream Tin is costing much less to raise than it did, beside the more the ground is worked the more experience is gained by the miners. Less dead work is permitted, and the discoveries, sometimes accidental, and at others by prospecting, prove beyond doubt that the supply of Stream 'l'in has hardly been touched. An enormously rich discovery of Cinnabar and pure Quicksilver in pockets has been made in the Falmer district. The reef is six feet wide in slate. (Courier.)

EAST INDIES.

CAST INDIES.

(Aitken, Spence & Co.)

COLOMBO, March 7, 1876.—Ptumbago.—The market is very firm with an upward terdency in prices, owing to news of rising values in London. Supplies are very small, barely meeting the existing demand. We quote, free on board, without freight, exchange at par, eleaned, including packages, per ton and duty, Lump, 310/: Chip, 170/, and Dust, 120/. Freight to New York, 70/ per ton. At the close a moderate business is doing. There have been shipped to the United States from Colombo and Galle since October 1 last, 30,630 cwts., against 12,143 in 1875; to England, 23,281; to Marseilles, 111; to Trieste, 362, and to Australia, 200; together, 34,645. The Kilarney, on Feb. 24, cleared for New York with 7883 cwts, included in the above statement, and sailed the following day. She will be followed by the Polly, 326 tons, now ready to load. Exchange.—Rates have gone down steadily during the fortnight; we quote documents 1/9½.

(Dummler & Co.)

(Dummler d (Dummier & Co.)

BATAVIA, JAVA, Feb. 26, 1876.—Tin.—At the anction 14th inst., 10,166 piculs Billiton were sold at an average of 53 guilders per teul. The next sale of a similar quantity will be held on Monday, April 10. Coal.—Several cargoes sold, but no particulars transpired. Exchange.—The tendency continues in favor of sellers, and credit bills on London have been placed at 12 05 guilders.

few months. Commencing in October last with great floods all over England, our illustrous friend and patron, Jupiter Pluvius, has indulged his humors at our expense all the winder the common of the wettest ever known. Speaking for myself, I would prefer to have my weather compounded like my whiskey (when I resort to that popular poison)—hot, and not too watery. In fact, I think that the gentlemen in the weather office have, if anything, mixed things a little too much, particularly during the thirty-one days of March. That month "came in with its traditional leonine blustering, but I regret to say it by no means" went out "in a becoming lamb-like manner. On the other hand, its last few highfa were notable examples of what the elements can do in the way of raining. Sundry meteorological gentlemen have been at the trouble to chronicle, average and "tot" up to the sundry week of the most more bad characters of the Mining in connection with the cornel manner.

THE METAL MARKETS

have been quiet but steady during the week, exclading the week, exclading the week on the most busines has been done. I have been quiet but steady during the week, exclading the wood to the most horizonday from the line London has a population of 4,250,000, there having from the lamb and population of 4,250,000, there having from the latter than an apportant of 4,250,000, there having from the week considerable interest was manifested by the sale at public auction of the allow of this almost moments of the Mining of the week considerable interest was manifested by the sale at public auction of the deal by the sale at public auction of the deal with the property and the copper was knocked down in various lots, but with very slight variation in price; 1735 to 250 to 254, and 2975 toos of ingots of the Mining from the week considerable interest was manifested by the sale at public auction of the test and the top the public and the content of the deal was a public auction of the test and the top the public and the public and the public and the p

the weather of the past month generally, and they report that it rained or snowed 23 days out of the 31; that the mean-very mean. I opine-temperature was 38.8, or 3.7 below the average for 40 years; the mean barometrical readings (at Birmingham) were 29:98, and (at Bristol) the rainfall 2 555, or 2 inches in excess of the average. Taken altogether, it was the coldest March since 1845, and the wettest for about 40 years. The soll is everywhere soddened, and much of the seed-including all cereals-has rotted during the winter instead of germinating. Such land as has not yet been sown-a very wide acreage-cannot well worked until the weather grows finer. In the low-lying districts floods of greater or less extent have been out during the whole winter, thus entirely precluding the possibility of cultiva-tion. These facts, carefully noted, will show that we have not, so far, very brilliant prospects for our next harvest.

THE IRON TRADE I fight shy of just at present. It is always an approved custom to kick a lame man. So with trade. When it is bad and shows no signs of reviving, "double" up your sleeves, my dear sir, and "let out" at it straight from the shoulder! Hit it fairly, squarely and savagely! Spare no terms of denunciatory wrath which your fancy can furnish or your elastic imagination invent. Declare that "nover in the history of this or any other country, not even in the records of classic Athens or haughty Rome, in the hight of their gilded splerdor and barbaric power, did, &c., &c., &c. "But no. Why should I adopt this style of declamation? I will not. That, at least, is magnanimity. I do not know, by the way, whether the editor is inclined to make any additional allowance for this spontaneons magnanimity and forbearance. "I fear me, 'tis not so." At any rate I must state, and now without assistance from hyperbole, the from trade is really so dull that it is practically almost impossible to say anything new or mercesting about it. From very size. I fight shy of just at present. It is always an state, and now without assistance from hyperbole, the iron trade is really so dull that it is practically almost impossible to say anything new or interesting about it. From every iron district of Great Britain reports are to hand declaring that the finished iron trade grows worse and worse. So much so indeed that scores of works are wholly laid off. In Derbyshire, Yorkshire, at Sheffield, &c., wages are being lowered, both in the iron and coal trades, and in but few instances are the men offering any resistance. The steel rail trade, however, is, at least, slightly more active, owing to the fact that the rails of that class are quoted £8 only, or even less by some producers. Iron rails are apparently out of the market at present, albeit 1000 tons or so were sold by auction at West Hartlepool last week at prices ranging from £5. 16/ to £5. 3/ per ton. These were all perfect, and most of them had been made under inspection by the North Yorkshire Iron Company. So far as finished from is concerned there is no change whatever, best Staffordshire bars being £9. 10/ to £10. A reduction of £1 per ton is not unlikely to be declared at the quarterly meetings to be held in a few days from now.

SEWAGE AND SANITATION.

SEWAGE AND SANITATION.

According to his most puissant Premiership, the Right Hon. Benjamin Disraeli, principal personage of the Queen of England and Empress of India, our universal motto should be Sanitas sanitatis, omnia sanitas. Under the Disraelian theory these should be the words we are first taught, they should be our watchwords and rallying-call throughout life, and our dying utterances when we at last forsake the pomps and vanities of this wicked world. But at the time Mr. Disraeli uttered the very fine sentiment, so epigrammatically embodied in the above motto, he was in opposition and put forth the declaration as a smart war-cry for his followers. Now he is leader of the government, and does not, doubtless, "distinctly recollect having pledged himself to any definite course of action in the matter alluded to by the honorable member opposite." Still, if Dizzy has forgotten, the country has not, and now and then something is being attempted. In May next, for instance, a conference on the subject of the health and sewage of towns, to be followed by a sanitary conference, will be held in London. Special attention will be devoted to sewage systems—both wet and dry—and the fullest possible information will be subsequently diffused. Whether any practical good will result is altogether another questior; but there can be no doubt that the water supply of towns and the disposal of town sewage are two problems which are yearly becoming more formiand the disposal of town sewage are two problems which are yearly becoming more formi-dable and more difficult to solve. Our rivers in dable and more ament to solve. Our rivers in many districts are simply open sewers, full of feetid, stinking refuse and all abominations, while rural water courses are all more or less poisoned by the land manure drainage, or by being made receptacles for village refuse of all vinds.

A TRAM CAR'S LOCOMOTIVE.

On Monday last, at Leicester, a noiseless and smokeless locomotive was tried on the tramways, for the purpose of ascertaining in what respect and how far horses can be dispensed with. The engine, I may say, is coming over to the Centennial, and emanates from Loughborough. The locomotive weighs four tons borough. The locomotive weighs four tons and a half, and is of twenty horse-power. All its "works" are enclosed in a car-like structure, and it gives off neither smoke nor steam, everything of that lik being condensed. The trial was fairly successful. A full account is given in the Engineer of April 1.

THE MODERN BABYLON.

of sellers, and credit bills on London have been placed at 12'05 guilders.

The Modern Babylon.

London is frequently termed the Modern Babylon, and that not inaptly. I am not sure, indeed, whether we Britishers don't take a mean sort of pride in thinking that in these modern times we alone can furnish a city equal in size, population and wickedness to the now reined city of the East. I can, at least, say with some sincerity, that if the ancient Babylon were more wicked (in the abstract) than the modern London, it had, indeed, a burden of the present tyrannous depression of trade. It is not bear. The Weather we have still with us, a fact which we have had every reason to bear in mind during the past few months. Commencing in October last with great floods all over England, our illustrious from most flagrant immorality exists in the lower rades of its population. I have no hesitating great floods all over England, our illustrious in saying that the east end of London, comprising the fluctuating maritime and riverside communities, shelters more bad characters of all nationalities than any half dozen of the most notoriously reckless settlements in the whole world beside. At the present time London, then application of 4,250,000, there having been a natural increase of 44,000 last year. Of the week considerable interest was population of 4,250,000, there having been a natural increase of 24,000 last year. Of the week considerable interest was required from 284 the volt of 284 the forthcoming quarterly meetings will bring about a drop in finished to a fare the constant of the most horrible description are constantly occurring without detection, and the representative proposed in the present time London in saying that the east end of London, comprising the fluctuating maritime and riverside communities, shelters more bad characters of all nationalities than any half dozen of the most horrible description are constantly occurring without detection, and the present time London in saying that the east end of London, com

				No. 1.	No. 3.
G. M. B., at	Glasgo	w			19.6
Gartsherrie.	69				60/
Coltness,	44			662 67	60/6
Summerlee,	9.5				59/6
Langloan,	0.0			68.6	59/6
Carnbroe,	16			63/6	59/6
Calcer, at Po					59.6
Glengarnock					60/
Eginton,	65 m 69				58/
Dalmellingto	78.8 a		******	59/	58/
Shotts, at Le					61/6
Kinnetl at I					59/
From Sv	van Ri	ma (T.	(mited)	report.	notice

From Swan Bros. (Limited) report, I notice that Counal & Co.'s stores now contain 62,484 tons of pig, and that there are 118 furnaces in blast in Scotland. Freights are for the most part unaltered.

IRON AND STEEL INSTITUTE.

I shall not endeavor to give you in this place even a resume of the business transacted by the Institute at its meeting last week, as you will have a full report from another source may, however, remark that everything passe off well, and that the discussions, particular off well, and that the discussions, particularly that on the manipulation of Bessemer steel, are worthy of careful perusal. The books of the Institute show that it is progressing numerically and financially, year by year. There are now 891 members, an increase of 143 during the twelve months. The North of England furnishes by far the largest number of members (175), and London not less than 92. There are 18 members in America, 43 on the Continent of Europe and 27 in "other parts." The receipts for the post year were £2462. 6d. and the expenditure £2114, 1/8.

TRADES OF SHEFFIELD.

Again I have to record "no change," Everything remains in statu quo so far as the iron trade is concerned. Few even of the best concerns are doing anything like an average business, and their order books are at the present time so scantily supplied that further reductions, both of working time and wages, are in band. As a matter of fact, indicative of more sweeping and general changes to be presently forthcoming, it may be mentioned that on Saturday last the whole of the men employed in the rolling mills and at the blast furnaces of the Sheepbridge Coal and Iron Company, near Sheffield, received notices terminating all existing contracts on April 8. This, of course, is preliminary to a reduction of wages, but the reliminary to a reduction of wages, but the recise percentage to be taken off has not, as yet, been made known.
It may interest some of your readers to in-

yet, been made known.

It may interest some of your readers to inform them that Messrs. Cocker Bros., Limited, Sheffield, wire manufacturers, &c., have declared a dividend of 10 per cent., free of income tax, for the year just ended. The report of the directors of Joseph and Robert Dodge, Limited, shows a net profit of £1241 on the year, leaving the balance of the guaranteed dividend to be made up by the vendor. The directors of John Round & Son, Limited, recommend a dividend of 7½ per cent. for the past year, which they state has been one of extreme dullness in trade.

As some indication of the current values here of Russian and Swedish iron, I place the following facts on record:

On Tuesday about 200 tons of 3 in. by % in. rolled melted Acadian bar iron, marked hoop A, were offered by auction in Sheffield, but only 25 tons were disposed of, at £13 per ton, determed here.

in. rolled melted Acadian bar iron, marked hoop A, were offered by auction in Sheffield, but only 25 tons were disposed of, at £13 per ton, delivered here. At the same time a large quantity of hammered and rolled Russian bar iron was offered for sale. There were altogether 11,571 hammered bars 3 in. by ½ in., weighing 314 tons; \$270 ditto, 2¾ in. by ½ in., weighing 74 tons; \$4153 ditto, 2½ in. by ½ in., weighing 74 tons; \$4153 ditto, 2½ in. by ½ in., weighing 74 tons; \$4153 ditto, 2½ in. by ½ in., weigh 99 tons, and 662 ditto, weight 16 tons, all marked m. b. Of these lots 100 tons sold at £11. 2,6, and the remainder at £11 per ton. There were also 3683 rolled bars, 3 in. and 2½ in. by % in., and about 114 tons marked m. 3 and Il N b. These sold at £9. 10/per ton. The last mentioned lots lie in London, but the selling price is delivered at a railway station, Sheffield, less a discount of 2½ per cent. In cutlery there is no movement. The seissors forger's strike is dying out.

DECLINE OF SHEFFIELD TRADE WITH AMERICA.

By the courtesy of Dr. Webster, United States Consul at Sheffield, I am to-day enabled to furnish figures (of a similar class to those given in my letter of about three months back, for the year 1875) showing a still further great decline in the business done with America during the three months ending March 31, 1876. In steel the falling off is 85 per cent.; in cutlery, 23 per cent.; in files, about 33 per cent., and tools, 26 per cent., all approximately. The tabular figures are these: DECLINE OF SHEFFIELD TRADE WITH AMERICA.

DECLARED VALUE OF STEEL, CUTLERY, FILES AND TOOLS FROM SHEFFIELD TO THE UNITED STATES DURING THE QUARTERS ENDING MARCH 31 IN EACH

March 31.		Steel.	Cutlery.				
1873 1873 1874 1875	15 10 8	3,995. 1/8 9,105. 6/10 6,270. 15/6 2,651. 19/73/ 9,464. 7/9	£95,320. 91,536. 53,603. 56,454. 39,586.	11/2			
Quarter Ending March 81.		Files.	Too	ols.			
1872. 1873. 1874. 1875.		£26,117. 15/ 29,609. 16/ 16,686. 15/ 12,186. 18/ 8,116. 10/	5,417. 4 2,778. 2,166.	11/0½ 9/7 9/3			
DECLARED VALUE OF	EXP	ORTS FROM	SHEFFIE	LD TO			

THE UNITED STATES DURING THE QUARTER OF EACH YEAR ENDING MARCH 31.
 56
 £353,893
 18/10½
 1872
 £407,209
 5/0½

 57
 359,036
 16/4¾
 1873
 455,175
 12/11

 58
 248,070
 2/2½
 1874
 347,000
 11/2½

1870	264,890. 3/5½ 242,453. 13/3 351,453. 5/5		185,207. 1/ 117,780. 17/	
collectiv	NGHAM, STAF	rately, furn	ish me with	no
the pres	ws of general send forth a ent tyrannou	groans for de s depression	of trade.	It

English tough copper rules between £82 to £85; best select, £83 to £84; 4 by 4 India sheets, £88; storng ditto, £59; Yellow metal, 7½d. The demand for English is dull, and the exchange with India is still so low as to prove prohibitory to the shipment of metals to the East. Yellow metal in like manner is neglected. Lead.—The market has been quiet, but firm. Soft Spauish, without silver, has realized £21. 2%, and a parcel of 200 tons sold for strival near at band at £21. 5%. Good soft English pig is quoted at £21. 10% to £21. 15%. Quicksilver.—Business has been done throughout the week at £10, which is the last quotation. Tim.—There has been greater activity in the tin market then of late. It opened firm at the beginning of the week, and husiness was concluded in straits at £73, at which price Australian was likewise quoted. As the week advanced the demand for Straits improved, and sales were reported £73. 10% to £74. Business was also done in Australian at £73. On Tuesday the Dutch sale of Banca took place, at which 24,800 slabs were rut up at anction, and 7300 sold. done in Australian at £73. On Tucsday the Dutch sale of Banca took place, at which 24,800 slabs were put up at auction, and 7300 sold, realizing an average price of 50ff—the equivalent being about £85 in London. Subsequent to the Dutch sale business has been somewhat contracted, and former quotations scarcely maintained.

The Wood Planing Machine.

The invention of the planing machine, now so extensively used in lumber mills and woodworking establishments, wrought a great change in old methods of preparing dressed lumber for building purposes. Previous to that time, all of the surfacing work, which now requires hundreds of machines and thousands of men, was done by the joiner at the bench. Then a single artisan, with steady exertion, could only prepare about 200 feet of common flooring, and other work in proportion, in the course of a day; while now, with the aid of an ordinary planer, often 10,000 feet are suitably dressed in the same length of time; and with some of the later improved machines, even much larger amounts have been turned out.

The first planing machine was, according to Richards, invented by Sir Samuel Bentham, of England, in 1779. Three years previous to that time, one Haton, it seems, was granted a patent, in England; but it is generally ignored, as it appears to have been an impracticable one. It was, too, more of a device for guiding planing cutters by means other than the wood, and is generally so considered by those who are best entitled to judge; thus in no way anticipating the invention of Bentham. To this centleman, then, is to be accredited the honor of originating the first conception of a machine for smoothing the surface of wood. General Bentham was a ripe scientific scholar, having received a thorough training at the Westminster School, of London. For several years he was Inspector General of the naval works of England, and while acting in that capacity, was directed by the government to make a tour in the north of Europe, to examine the progress of shipbuilding and other works in the upper countries. While in Russia, he embodied his first ideas of a planing machine; but, unfortunately, no accurate description of the invention, so fer as perfected at that time, has been preserved. Richards, in his "Treatise on the Construction of Wood-Working Machines," says: "Whether it operated by what, in his subsequent patents, he terms 'rotative' motion, or whether it was a reciprocating machine, is, so far as the author can learn, left to conjecture It would, however, be inferred from his first patent in England, of 1791, that it worked upon the latter principle, for 'planing and working moldings,' by some means that bore a close analogy to the hand operations of the times." Although Bentham invented his useful de-

vice in Russia, his regard for his native England caused him to reserve it for her benefit; and to Britain is, therefore, given the honor of presenting the first planing machine to the world. The perfection and usefulness it has since attained is known to all mechanics.

London Metal Market. | CFrom The Mining Journal | CFrom The Mining Jo (From The Mining Jo 25 5) 24 10 0 23 1) U Quickstiver. Quickstiver. Planks of 75 lbs., ware..... 10 0 0 84 | Strate | Copper | C

BUSINESS ITEMS.

The Katabdin Iron Works for the last month using to produce that amount 18 tons of ore and 1300 bushels of charcoal. If the supply of still better when fully worked in. charcoal were sufficient the daily product of iron would be 12 tons, and more kilns are to be built the coming season.

The iron foundry of W. E. Slayton, at Calais, was burned last week. Loss, \$25,000; insured for \$6000.

NEW HAMPSHIRE.

The Humphrey Machine Company, Keene, report business as looking up somewhat. This company lately received a duplicate order, by cable, from Hamburg, for a set of cask machinery, they having shipped machinery to fill a similar order the 12th of January last. A sample cask sent over from Germany, and to be seen at the office of the company, speaks most s'gnificantly of the urgent needs of our German cousins in the line of improved machinery, also demonstrating the wide contrast between their finished wares and those of American manufacture. The Humphrey Company are preparing to exhibit, at Philadelphia, one of their improved I X L turbine wheels.

The Paddock Copper Company, of Lyman, are doing a heavy business. Copper is being crushed, and a large force will soon be work-

VERMONT.

The Stafford & Holden Manufacturing Company, with a capital of \$40,000, has been organized at Barre, and will make agricultural imple-

MASSACHUSETTS.

The Springfield Republican gives a very interesting statement in regard to the Western Massachusetts Centennial goods which are being rapidly shipped. Smith & Wesson, of this city, send tifty elegant pistols, and E. H. Barney a fine assortment of skates. The Westfield American Whip Company send 100 of the most elegant whirs ever made in town; A. W. Crossman & Son, of West Warren, edge tool manufacturers, are making a full assortment of their tools for exhibition, consisting of chisels, drawing knives, gouges, etc., and expect to ship them in about a week; Robbins & Kellogg, of Pittsfield, have shipped 35 samples of their pegged shoes; and from Graham A. Root & Co.'s quarry in Sheffleld go specimens of marble from three ledges, one of which fornishes fine statuary marble. Florence will spend some \$12,000 on her representation. The Nonotuck Silk Company will have machinery to show how their goods are made, with a printing machine for labeling the ends of the spools, and a fine collection of cocoons brought from California; the sewing machine company will exhibit their machines, their new skate and oil stoves, a recent invention of Gen. O. Edwards; and the Florence Manufacturing Company send a variety of goods-hand mirrors, brushes, buttons, etc.-made from their patent composition.

J. L. Colby, of the Lanestoro furnaces, has sold some hundreds of tons of pig iron, and is drawing it to Pittsfield for shipment East and

The sewing machine works at Orange are running full time.

Business is quite driving with the Northampton Emery Wheel Company, at Leeds. They send a variety of machines for operating emery wheels to Philadelphia.

CONNECTICUT.

Superior pig fron is now transported from central Alabama by rail to Pensacola, and thence by water to New Haven. A consignment of 480 tons from the Shelby Iron Company arrived last week; but then, you know, the Shelby Iron Company is composed of gentlemen who reside near Hartford.

The Meriden Britannia Company have on room in their extensive factory set apart exclusively for Centeunial goods, ready for shipment. There are already in the room thousands of dollars' worth of unique articles, all of novel design and superior workmanship. In the lot by 4 feet globe engine, made in Cleveland, about \$100,000. The object is to extend their is a pair of Pompeian urns, standing five feet high. Beside these, there are glass fabrics, goblets, salvers and punch bowls,

The Naugatuck Cutlery Company are driving business, and though the factory is full o hands they are unable to keep up with their or

The Bridgeport Cartridge Company have late ly been making large shipments of cartridge

P. & F. Corbin, New Britain, a hardwar firm, will make a creditable display at the Ex position.

Among the Waterbury manufacturing com panies who will exhibit at the Centennial ar the Benedict & Burnham Manufacturing Com pany (brass, copper, etc.); the Waterbury Bras Company; the Waterbury Button Company the American Pin Company; the American Suspender Company; Rogers & Brother (plated goods); the Scovill Manufacturing Company, and Hoimes, Booth & Haydens,

Hull, Belden & Co., Danbury, have more than doubled their men since the first of January, and have, in the last six weeks booked more orders than in the four months preceding. The sale of their dead stroke hammers is rapidly increasing; the average shipment at the present time is four per week. The drop forgng department is crowded with work to the fullest capacity, and there are orders for this firm is making a specialty of manufacturing small patented articles of various descriptions. They are now employing about forty hands in this branch of the business. This department is partly running upon orders, and, in a few cases, paying royalties to the patentee.

NEW YORK. Pratt & Co., Buffalo, are running. The Union

Mills are idle.

Rome Mills are running.

PENNSTLVANIA. The North Cornwall Furnace (Mr. Samuel Mumford, founder), made, last week, 187 tons have been turning out ten tons of iron daily, of No. 1 iron. This is one of the new furnaces lately built at Cornwall, and will, no doubt, do

> Mr. P. L. Weimer, of Lebanon, has received contract to furnish 12 hot blasts, for the Messrs. Bushong, of Reading.
> On the first of April Hon. J. K. Ewing &

Robert Hoggsett bought one-fourth interest in Lemont Furnace Company, Fayette county.

The firm now consists of Messrs. J. P. Hanna

The bolt department and & Thomas H. Rabe, of Pittsburgh, and Messrs. J. K. and A. D. Ewing, A. W. Boyd, Wm. McCleary and Robert Hoggsett, of Uniontown, and the firm name will be Ewing, Hanna

A large cast iron chain of 38 links, to represent the 38 States, has been manufactured for the Centennial by a Philadelphia firm.

The Connellsville Tribune says: The nail factory, at Scottdale, has not yet put in an appearance, although things are working in the right direction, and one of these days some action will be taken that will put matters in a tangible shape.

During the week ending April 8 there were 632 cars of coke transferred from the Mount the 1st of next month. Pleasant Branch, B. & O. R. R. to the South West R. R., at Fountain Milis.

While the piston head of the blowing engine being built at the Weimar Machine Works, Lebanon, for the Centennial, was being placed in position, by some means the hoisting apparatus gave way, and it fell a distance of 12 feet, breaking the head into several pieces and knocking a dent in the fly-wheel. The head, after a hasty examination, seems to be injured beyond repair.

The Philadelphia mills are all running. SHENANGO VALLEY.

Reis, Brown & Berger, Newcastle, were only

unning their bar mill last week. Bradley, Reis & Co., Newcastle, are again in operation double turn, baving been completely victorious in their contest with their workmen. The "gangs" at the rolls are entirely new

men. The Middlesex Rolling Mill, which was sold at assignee's sale on the 10th, was bought by the Wheeler Iron Co., proprietors of the Fannie Furnace, for \$1020. They held a mortgage against it for \$25,000, and bought it to save themselves.

Some 30 years ago the present Westerman Iron Co.'s mill was a steel mill. Some of the old cementation furnaces were only taken down last year, and a portion of the old plant is still about the mill.

The blowing engines of the Westerman Iron Co.'s furnaces are a curiosity in their way, being two enormous horizontal engines of some 7 feet stroke. These are probably the largest blowing ergmes in the world.

Kimberly, Carnes & Co., Sharon, are progressing rapidly with the addition to their new mill.

We are informed by an old furnace man here (Middlesex) that in the spring of 1852 iron sold blooming mill of the Cleveland Rolling Mill as low as \$14 per ton, and in 1842 charcoal iron for \$16 in cash.—Sharon Eerald.

The Wampum Furnace is one of the oldest in this valley, and is the only stone stack left in use. It has no hoist, the stock being delivered at the furnace top by carte, which is very easily done, as the furnace is built on a hillside, the top being below the level of the Erie & Pittsburgh Railroad, which passes within a few feet of it. This furnace is working entirely on native ore and coal, and making a very good iron. The coal is part coked in their own ovens and part raw. The ore is a fine hematite. Some Pittsburgh parties are interested in similar ores, and propose to make a trial of them in the Pittsburgh furnaces.

The Neshannock Furnace, at Newcastle, is making about 400 tons of Bessemer per week.

A new vertical blowing engine, of McIntosh, Hemphill & Co.'s make, 84 inch by 4 feet blast cylinder, has just been started up. The furnace has heretofore been blown by a 72 inch

The following shows the furnaces in and out of blast in the Shenango Valley last week :

	Wampum .			
0 .	Eina			 1
	Neshannock			 1
- 1	Sophia			 0
11	Pet		********	 0
1.1	Rosens			 1
. 1	Crowther			 0
	Middlesex			
	Fannie			
li	henango			 0
13	Wheatland	*******		 ŏ
	Stewart			
	Keel Ridge.			
1	Westerman.			 9
	Sharon			
	Spearman.			
	Ormsby			
	Douglass			
	Sharpsville.			
	Allen			
1	Mt. Hickory	*******	********	 U
1				4.4

all estates and the steament at soy. The cause of assignment is reported to be some financial trouble with the Steubenville Furnace Company. The mill employs between 150 and 200 men aboys.

The creditors of Zug & Co. held a meeting in this city on Thursday and Friday of last week. The firm submitted the following proposition: To pay firm creditors 50 cents on the dollar, payable in one, two, three and four years, with interest; to pay their individual correspondents of the cause of manner. To accept this proposition required a majority in numbers and three-fourths in value voted to accept the proposition, but a very large preponderance of the value voted against it, and, consequently, it was rejected. At a subsequent meeting debts were proven to the amount of \$283,350 63.

There were creditors present representing sin and inspection of a committee of creditors and inspection of a committee of creditors and inspection of a committee of creditors present represent to the creditors and inspection of a committee of creditors and inspection of a department for several months shead. This ployes of the firm, voted to accept the prop-

consisting of John Dunlap, William H. Smith and William Clark. This action was unani-

The locomotive and car works, at McKees port, are running full time.

The Edgar Thomson Steel Works, which have been in full blast for some time, now em-

ploy about 800 hands. The glass men shipped their samples to the

Centennial Saturday.

The bottle house of C. Ihmsen & Sons has been leased by Wightman & Co., who propose

The bolt department and polishing mill of the American Iron Works, Jones & Laughlins, are running full capacity, getting out bolts and shafting for the Centennial.

William Miller has worked up quite a business in forging Bessemer locomotive cranks, the U being cut out after forging. He is finishing two for the Centennial.

The Vesta and Cosmos Oil Refineries were sold Thursday last at \$75,000.

Porter, Bell & Co. are to construct a locomo tive for the Waynesburg and Washington Railway, which will be completed on the 10th of May next. Proposals for furnishing iron for ten miles of the road are also under consideration, and it is expected work will be commenced

A model of Lucy Furnace, by Urban Mabrer. of Lawrenceville, has been made to the order of Carnegie Bros. & Co. for exhibition at the Centennial. It comprises the stock-house, engine-house, boiler-house, cupola, steam-houst, the railroad, etc. It is constructed on a scale of one-half inch to the foot. Mr. Mahrer has been engaged on the work day and night since Christmas.

Many of the South Side glass manufacturers buy their supply of glass melting pots instead of manufacturing them for their own use. The quality of the clay recently discovered in the vicinity of Steubenville is pronounced equal, if not superior, to the German clay heretofore used in the manufacture of glass melting pots.

WEST VIRGINIA.

It is reported that the Wheeling mills are about to begin the manufacture of the Blees' pointed nails.

The strike at the South Wheeling Glass Works has ended, and the men returned to work yesterday at the same rates paid before the strike. Messrs. Hobbs, Brockunier & Co. chose to consent to the demands of the men rather than to allow their works to remain idle. The Piedmont Independent says the Virginia Coal Company, near Piedmont, will send to the Philadelphia Exposition a section of a seam of coal fourteen feet high, with but four inches of impurities.

The Lawrence Furnace blew in on the 11th. Fulton Foundry, Cleveland, is melting on an average about twelve tons of metal per day, most of which is converted into car wheels, car work and machinery castings.

One hundred and eighty-one blooms-two rails to a bloom-were turned out at the new Company, on Thursday last, and 24,000 No. 4 rods were turned out at the new rod mill, in a single turn on the same day.

The following works in Alliance are under full headway: The Keystone Spike Works, making spikes for harvesting machines; Marchand & Morgan, steam bammer manufacturers; the Alliance Bagging Company, flax and jute bagging; B. F. Mercer, pump manufacturer; Coates, Gray & Co., horse rakes. This latter firm expect to turn out six thousand of their rakes the present season.

Star Furnace has blown out, caused partly by the turnace not working well, but principally on account of the low price of iron. It will not probably go into blast again for some time. There are now only two of six furnaces in town in blast-Fulton and Huron,-Jackson Standard,

The Portsmouth Times says: The Burgess Steel and Iron Works have opened their books for an increase of the capital stock of the company works and enlarge their manufacturing facili

ties. Mr. John R. Williams, of the Burgess Steel and Iron Works, has secured letters patent on the mode of manufacture of steel horse blanks and one for a die for finishing steel horse above They are made with four square calks on each side, and present a less wearing surface than an ordinary shoe, but are at the same time thicker and lighter.

The personal property of the Kenton Furnace will be offered for sale on the 20th, and the realty on the first of May.

The Ohio Valley Iron and Nail Works, at Martin's Ferry, has made an assignment. The liabilities are set down at \$35,000. The cause of assignment is reported to be some financial trouble

precess, but the steel is made in the crucible in the ordinary way. They have lately secured a trade-mark for the words "Crucible Iron." It is applied to their boiler plates, and indicates the process by which it is made,

The Ironton Commercial says: Messrs. M. Addy, from Cincinnati, and J. M. Gloss and Jas. Thomas, from Alabama, were in the city tuis week examining our furnaces, with the idea of building a new furnace in Alabama.

Belfont Furnace resumed blast last week vith chances of running some time.

Hecla Furnace has been holding for better prices for some time, and has accumulated a very beavy stock for that furnace on the river bank. This week, however, it begins to move, 280 tons leaving by the Cobb Cecil, which also takes about 300 tons cold blast from Ætna and Vesuvius furnaces. Manufacturers of car wheels have been holding off quite a while for lower prices, but the consumption of car wheels has outgrown their manufacture, and now to supply their needs they must stock up with sold blast iron .- Commercial,

The Standard Iron Company, at Cleveland are running almost entirely on galvanized sheet, making black sheet only in heating up their rolls for the galvanizing sheets.

The mill of Evans, Cliffin & Co., Cincinnati, running full, single turn; the forge double. The Empire Mill, Wilder, Bolus & Co., Cin cinnati, is idle and boarded up, with no pros pect of starting. This was a little mill, with only two heating furnaces, no puddling furnaces, and two trains of rolls, and was one of the mills that had such wonderful facilities for making iron so much cheaper than its competitors

A meeting of the creditors of the Iron and Steel Company, Ironton, was held at the office of the latter on Thursday, in pursuance of the recent circular of the company. Gen. W. H. Enochs was made chairman, and Ironton A. Kelly, secretary of the meeting. A full statement of the affairs of the company was shown, and the creditors considered the situation, coming unanimously to the conclusion that the extension should be granted as asked, and all present signed the papers granting it. The most favorable feeling toward the company was manifested by all present, and their proposition to pay every dollar they owe, with 8 per cent. interest, was acknowledged all that could be asked for under the depressed condition of on Monday for a run of about 10 days, in order to work up some unfinished stock.

Zanesville is about to ship a 20 horse-power shoo fly" portable engine to the Centennial.

MAHONING VALLEY.

Cartwright, McCurdy & Co's. old mill, at Youngstown, was on single last week, and the new mill idle taking stock; this week both will be running single. For ten years this firm have made nothing but hoops and bands, but it is their intention to start their guide mill

The puddle department of the Youngstown Rolling Mill started up on Tuesday of last week. with the new battery of boilers. The company intend to start their old 8-inch and new 7-inch hoop trains this week.

For two or three days past the Enterprise Rolling Mill, Youngstown, has been making samples of hoop iron to be taken to the Centen nial Exhibition. The iron is to be of all grades

The advance of 35 cents a keg on pails, made by the Association at Pittsburgh last week, is having a tendency to make prices in all kinds of iron firmer and increase the number of orders. We hear of several large sales of pig iron made within a few days by parties in the Mahoning Valley, while many are holding for better figures. Youngstown iron has found its way to California. The firms of Brown, Bonnell & Co., Cartwright, McCurdy & Co., and George Turner & Son, are each filling orders for California .- Youngstown Register.

The following is a statement of the furnaces

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The Wason Car Works and Foundry, Chattanooga, are working a large force of hands.

ILLINOIS.

It is reported that the assignee of the Belleville Nail Works sold at auction the stock of nails or hand, amounting to some 5000 kegs, at the rate of \$1.85 for 10d.

ool steel. The stock is made by the Burgess at present. There would be plenty of employment for a hundred. Forty cents a ton is paid for getting the ore out, and one man can average about two and one-half tons per diem.

INDIANA.

The Aurora Iron Company have bought the nail plant of the Lectonia (Ohio) Mill. all but the nail machines, and are fast getting it in position. This mill will operate only the Haddock self-feeder, twenty-five of which are in course of construction. They will begin the manufacture of noils the last of May, and will be in full operation in June. They intend putting in an additional number of puddling fur-

The Indianapolis Rolling Mill Company are running on rerolling rails, doing but little new

The Capital City Rolling Mill, Indianapolis, are running single turn, making a general assortment of merchant iron and light rails. They are using ald rails largely, working them up into the various forms, and consequently do but little puddling, only three furnaces out of seveneen being worked.

The Beginnings of Trade Unionism.

A writer in Lippincott's Magazine says on this subject: In these days of trade unionism and strikes an account of the germ of such associations in this country is not without interest. So far back as 1806 a remarkable trial arising out of such a combination took place before the recorder of Philadelphia and a jury. It lasted three days and excited extraordinary interest. Jared Ingersoll and Joseph Hopkinson were counsel for the prosecution, Casar A. Rodney and Walter Franklin for the defense.

The defendants, eight in number, were indicted for not being content to work at the usual prices, but contriving to increase and augment them, and for endeavoring to prevent, by threats, menaces and other unlawful means other artificers from working at the usual rate, and uniting into a club or combination to make and ordain unlawful and arbitrary rules to govern those engaged in their trade, and unjustly exact great sums of money by means thereof.

The evidence went to show in the clearest manner that a system of frightful thralldom had been put in force. A witness named Harrison stated that when he reached the United States in 1794 he found this system of terrorthe iron market. The mill will probably start ism prevalent. He went to work for a Mr. Bedford, and presently got a bint that if he did not join the association of journeymen shoemakers he was liable to be "scabbed," which meant that men would not work in the same shop, nor board or lodge in the same house, nor would they work at all for the same employer. The case of this man seemed exceptionally hard. He made shoes exclusively, and when a "turnout came to raise the wages on boots" he remonstrated, pleading that shoes did not enter into the question, and urging that he had a sick wife and a large family. But it was all to no purpose. He then resolved that he would turn "scab" unknown to the association, and contique his work; but having a neighbor whom it was impossible for him to deceive, he went to him and said that he knew his circumstances, and that his family must perish; or go to "the bettering house" unless he continued to work. This neighbor, Swain, replied that he knew his condition was desperate, but that a man had better make any sacrifice than turn a "scab" at that time. He presently informed against him, and Mr. Bedford, his employer, was warned that he must discharge his "scabs." He refused, saying that, "Let the consequence be what it might, we should sink or swim together." However, one Saturday night, when all but Hafrison and a man named Logan had left him, Bedford's resolution gave way, and he exclaimed: "I don't know what the devil I am to do; they will ruin me in the end. I wish you would go to the body and pay a fine, if not very large, in order to set the shop free once more." The fine offered was refused, and Mr. Bedford's shop remained "under scab" for a year. Still, Mr. Bedford, who must have been a very plucky fellow, would not give Harrison up, but removed in 1802 to Trenton. Harrison stated that although he could not, had Mr. Bedford given him up, have got work anywhere else, and that he might have ground him down to any terms, yet he (Bedford) very nobly always gave him full price. At length, by paying a fine, Harrison became reconciled to his persecutors, and Bedford's shop was once more free.

William Forgrave said that "the name of a scab' is very dangerous; men of this description have been hurt when out at night." He had been threatened, and joined the association from fear of personal injury. A vast deal more of evidence was given and eloquent speeches delivered by counsel, but the going gives the sum and substance of

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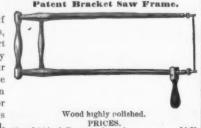
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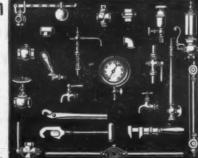


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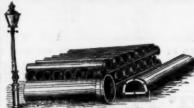
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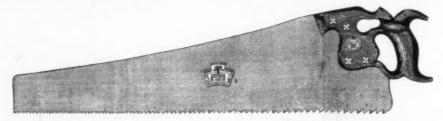






This Saw is ground on the back, to taper gradually from butt to point, being only 26 gauge at the point. By this mode of grinding, the Saw, when tested, makes a complete "whip bend." The handle is apple-wood, oil finish, the screws are flush and polished, and the Saw is superior to any ever offered to the trade in this or any other country at the price. It is the sweetest-cutting, nicest-hanging Saw that can possibly be manufactured, feeling as light as a feather at the point, owing to its peculiar construction. The screws are finished before being put into the handle, and, should they become loose, can be readily tightened with an ordinary screw-driver, and still make a good finish.

ACME No. 120.



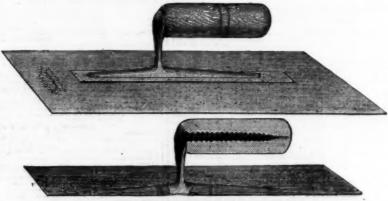
We present to the trade this week a cut and description of our Acme Saw No. 120. This Saw combines all the valuable improvements in Hand Saws that have been made by us of late.

The first and most important improvement is the hollow or skew-back, the success of which can best be attested by the number of these Saws that has been sold this month—two hundred and sixty-three dozen have been ordered since March 1st by letter, as our stock orders for the spring trade were nearly all in before that date.

The No. 76 formed the bulk of these orders, but the fact of the above number of the Skew-Backs having been sold in three weeks, taking into consideration the depression of business, is sufficient to prove that it is bound to supersede all other saws.

The peculiar shape of the butt or heel of this Saw (No. 120), coupled with the new method of fastening to the handle, gives a full stroke of the blade without fear of catching or hooking in the work; and as the handle is put further on the blade you have a full stop at the proper point, and a greater command over your saw, by reason of being two inches nearer to the point which must give more power. The new handle is complete, and so constructed that it makes the easiest feeling handle imaginable, and one that will not wear hard places on the hand.

The saw being let into the handle on a circle has a perfect bearing, which, with the new screws, makes it stronger and almost impossible to work loose, and avoids the unsightly gap that is seen on the back of the old style handle. All the above features are patented.



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PLASTERERS' TROWELS.

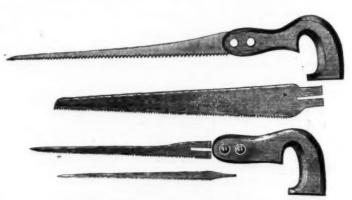
The attention of Plasterers is called to the above cuts of our new Plastering Trowel No. 0, for which we have received Letters Patent of the United States, dated April 20, 1875.

We warrant this Trowel to be superior to any other in the market, and guarantee it to give entire satisfaction. Our improvement consists in making a Plastering Trowel with a central longitudinal rib, giving thereby additional strength and at the same time allowing the use of rivets with larger heads, thus securing the mounting more permanently to the blade. The Trovel is light, yet stiff, and will not loose its shape through friction as most Trowels do.



THE COMBINATION SAW.

The Combination Saw, which we illustrate herewith, is an article which fills a long-felt want: it combines five tools in one, each tool as light as any one of the tools in separate form. This combination being made entirely of metal, and put together with metal, is always firm and true. No shrinkage can affect it. It is the most complete weather board Saw in the world, and with our little Pocket Level it presents a complete Plumb and Level, a Hand Saw, a good Square, and Rule.



COMPASS SAWS.

Our new Compass Saw is a great improvement on the style in common use—with it the operator need not bring his hand in contact with the saw blade when extra power is required, as provision is allowed in the handle for two full hand grips. They are cheaper than common Compass Saws, when you consider that broken blades can be renewed at a small cost, whereas in the old style, when the blade is broken, the whole tool is useless. We advance one size in price for our New Patent Handle, i. c., for 10 inch blade and new Handle, we charge 12 inch price. The blades are sold in nests, or separately, and are interchangeable.



NEW PATTERN BACK SAW.

The recess on the side of the handle to admit the thumb is a a grand improvement, as the hand is not eramped, but feels very comfortable.

New York Wholesale Prices, April 19, 1876.

HARDWARE.	COMMON CAST, WOT DEILLED. Fast Joint, Narrow,New list July 1, dis 30&10 \$	Egg Benters.	10 In.	Providence Plate. { 6 and 8 in. 11c # m } dis 40 %	Plane Irons, Ohio Tool Co
	" Jap'd " dis 35&10 \$	Mouroe's	9'00dis 10 %	Screw Hook and Strap	" Sandasky Tool Co
American	Louse Joint, Narrow and Broad "dis 50&10 % dis 45&10 % dis 45&10 % dis 45&10 % dis 40&10 %	Peerless		Heavy Welded Hook [8 to 12 in 9%c; dis 30 @ [14 in & up, 11 c] 40 % [14 in & up, 11 c] 40 % [15 in., 8%c]	Button's Patent
Anvils. American. Wight's Would in Wicker over 200 ms inc, gold Arminage's Mouse Mole	Loose Pin	Emery. Genuine Chester—Regular Nos. Flour and Fl Washington Mills—Regular Nos Flour.	P → 60 dis 10 €	Screw Hook and Eye	
Eagle Anvils (American) \$ 5 10c dis 20 \$ Apple Parers.	Fast Joint, Narrow New list July 1, dis 25d: 10 %	Washington Mills—Regular Nos "Flour Wellington Mills, Grain	m 10c. net	Solid Shank, C. S	Plumbs and Levels Stanley R. & L. Co.'s Pas. Adjustabledis 60&10 a
A pple Parers. Domestic	Broad	Enameled and Tinned W	are. # 8 80. net	Grub	Chapin's Non-Adjustable dis 60&10 %
Lightning. Hudson's. Iteaun's. \$7.75 \$\pi\$ dog	Parliament & Mayor's Hinges ** dis 35&10 \$	Washington Mills—Regular Nos "Flour. Wellington Mills, Grain. "Flour Ennmeled and Tinned W Kettles. Sauce Pans. Glue Kettles. Tinned Saucepans.	dis 25 %	Hoese \$\frac{1}{3} \text{in.} \text{11\frac{1}{3}\color} \\ Solld Shank, C. S.	Eureka Filers and Nippers. dis 38 g Flumbb and Leve's a Stanley R. & L. Co.'s Pas. Adjustable. dis 60&10 g War War Won-Adjustable. dis 60&10 g Standard Raie Co.'s New Adjustable. dis 60&10 g Standard Rule Co.'s New Adjustable. dis 60&10 g Standard Rule Co.'s Non-Adjustable. dis 60&10 g Focket Levels. dis 50&10 g Johnson's Fatent Adjustable. dis 60&10 g Davis Fatent. dis 60&10 g
Union. Skeleton Faring, Coring and Silcing \$3.00 \$\psi\$ doz net Bay State, Paring, Coring and Silcing \$15.00 dis 10 \$\psi\$ Commax Silcer 8.00	Loose Prin	Tinned Saucepans			
Cumax Slicer	Union Mfg. Co. s Fancy Butts.— Figured Enameted Loose Jointdis 55&10 %	Escutcheons. Door Lock	dis 60&10 %	Cotton	Pulleys. Judd's Axle. per doz \$0.75 dis 40 % Hot House and Tackle. dis 60&10 % Jap'd Screw. dis 60&10 %
Ash Sifters. dis 10 \$ J. E. Coruing's Barrel Head	Nickei Plated	Faucets.	dis 50 %	" Weston's No. 1, \$2.00; No. 2, \$7.00 per doz net " McGill's	Japu Serew dis 60cto 5
Augre and Bits.	with Sir d	Star. Frary's Patent Petroleum	dis 55&10 %	"Skinner'sper doz \$6.25, dis 20 \$ Clothes Line, Hart's list	Clothes Line
From: Variety Mig. Co	## Broad	Fancets. Fenn' Cork Stops Star. Cork Stops Frary's Patent Petroleum. Wood and Metallic Wood, Cork Laned. Enterprise Mfg. Co., Self-Measu Fellor Plates.	dis 65& 10 %	Cotton	Pumpa, Douglas Cistern, etc
Griswold	Table Butts, Back Flans, &c	Files.	W B 15c: dis 25&10 %	Harness Sargent's list	S. & F new list dis 20 g Union Mrg. Co's. Cistern and Pitcher dis 3x g " " Rams dis 20 g " " Garden Engines dis 10 g
Соок's	Inside Bund, Regular	Felloe Plates. Files. American File Co. \$5 (Arcade File Works. Auburn File Works. Nichoison. C. B. Paul'a. Hellor & Bros	\$5 00 to £ currency	" Sargent's list	Punches. Belt or Driveper doz \$2.00; \$2.25; \$2.50 dis 25 \$
Snell Mtg. Co. dis 25 g	Am. Spiral Spring Butt Co list May 1st	Nichoison. C. B. Paul's.	new list, Jan. 1. 1875, net	" Reading	Belt or Drive
Andrews' Bits	Paimer	Heller & Bros Johnson & Bro 'Western'	45 00 to £ currency	Hooks and Eves_Malleable fron dis 80 & 10 \$	Raii. Sliding Door, Wronght Brass P B 40v. net
Expansive Bits, Clarksmail, \$16; large, \$30—dis 10 % 1 Ves'	* Shepard	Western" Wheeler, Clemson & Co	\$5 (i) to £ currency	Herse Nails.	Bemis' dis 20 %
Lewis' Single Twist Bits	Light dis 4065	Wheeler, Clemson & Co. Rothery's J. & Riley Carr Horse Rasps Stubs'	5 00 to £ gold	Ausable	Rakes. Cast Steel
Hollow Augers, Douglass'	Clark's, Nos. 1, 3 and 5	Stube'. Butcher's. Walter Spencer & Co.'s " Diamo Spear & Jackson s	and " 4 50 to £ gold	Cortland " 29c 26c 24c 23c 22c 21c	Rakes Cast Steel 0
** Bonney's Adjust. # doz \$48—dis 25&10 % Stearns' . # dox \$48=0.00 % Stearns' . # dox \$48=0.0	Can Openers.	Spear & Jackson s. Jowitt's. W. K. & C. Peace's "Imperial". R. Ibbotson. Turton Bros. & Matthews.	4 50 to £ gold 5 25 to £ gold	Globe, P't'd & Pol'd " Sic 28c 26c 25c 24c 29c National, Polited and Polished, Pat. Fin " 29c 25c 28c 22c 21c 20c	\$5 00 5 50 6 00 6 50 9 11 18 15 teeth.
" Universal Expansive each \$4.50—dis 10 \$ (imlet Bits—Screw, \$7.50; no screw, \$9dis 20&10 \$	Messenger's Comet. per doz \$3:00 dis 20 \$	R. Ibbotsoa Turton Bros. & Matthews	\$5 50 to £ currency	Pollshed, Pat. Fin " 29c 25c 28c 23c 21c 20c National, Pointed and Pollshed, Ex. Fin " 30c 27c 25c 24c 28c 22c	Razer Straps. Evan's
Double Cut Gimlet Bits, Shepardson's	No. 4. Frenchper doz 225 dis 50 \$ No. 5, Iron Handieper doz 225 dis 40 \$	Goodlad's	4 00 to £ gold 4 75 to £ gold	Polished Ex. Fin " 80c 27c 25c 24c 28c 22c Perkin's P't'd—Black. " 29c 25c 23c 27c 21c 20c Perkins' Politaked. " 30c 26c 24c 28c 24c 21c	Exarger Straps
Hartwell's dis 50 % Douglass' dis 20 & 10 a glass' dis 20 a glass' dis 20 a glass' dis 20 a glass' dis 20 a glass' dis	Lyman's	Turon Bros. & Matthews. Fisher s. Goodlad's. Moss & Ga.nble. Thos. 1urner & Co. (Feter A. Fr Horse Raspe "Philo Sheffield," P. T. Co. Limet & Co. (French). Fluting Machanes.	asse & Co.) 5 00 to £ gold 	Polished	Saunder's
Morse's Bit Stock Driis, List of Jan y 1, 10	Sardine Scissorsper dos \$7.00 dis 50 %	Limet & Co. (French)		Perkins' Pointed and	Rivets. Iron and Tinned. Iron bulk. General Head of the second of the se
Vaughan's l'ost Hole— c in \$43 60; 7, 8 and 9 in. \$25 per doz	Caps.—Fercusalon, per 1000. G. B	Flating Auchines. Mrs. Coles. "Popy. 4in., \$4"75; 5 in. \$5: Knox, 4 inch Rolls. " 6 " " 8 " " 8 " " 8 "	6 in. 5 50; 7 in. \$6 dis 10 \$ each \$4 50 act	Star isrand, 16c.; Morgan	In bulk
Awis, Brad Sets, &cc.	Colt's1.10s, 81.58c., gold	" 6 " · · · · · · · · · · · · · · · · ·	each 5:00 net	Perkins' and Vulcan	Road and Levee Scrapers.
Awis, Sewing, Common	Carpet Sweeperseach \$3 75 net				Rode. Stair
Awis, Brad Sets, &cc. Awis, Sewing, Common	Constructions - Metallic	Peerless, 4-inch Rolls. 8	4 75 each net	Mule Shoes	Rollers. dis 35/4 % Rollers. Barn Door revised list dis 60, 10&10 % Novelty dis 10 %
** No. 42, \$10 50; No. 43, \$12 50 dis 4. 42 10 % Clark's	Carus, -Horse and Curry dis 30&10 %	Champion, 6 inch rolls	6 00 each net 5 00 each net	The Boston Hore Shoe. Pkes, 5875, The Boston Hore Shoe. Per keg 5075, The Boston Rolling Mills Hand Made \$\psi\$ 56 Ice A wis, Chiseis, &c. Der don \$6:50 net American lee Chisel.	Novelty. dis 10 % Repe. Manufacturers' List of Mar. 8, 1876.
		Empire No. 1, 7-inch Roll	8 00 each net	Boston Rolling Mills Hand Made per dox \$6.50 net American fee Chief per dox \$6.50 net American fee Chief per dox \$6.50 net National per dox \$6.50, dis 10.5 Novelty Ice Breakers per dox \$6.50, dis 10.5 Novelty Ice Breakers per dox \$6.50, dis 10.5 Uninap a Sting Ficks per dox \$4.25, net Winte's Sliding Head Picks per dox \$4.25, net Wood Head Picks, Sargent's per dox \$1.50, dis 60.610 s Iron per dox \$1.50, dis 60.610 s Iron per dox \$1.50 net Pick in Head per dox \$1.50 net Lox Axes, Small, Cast or Malleable per dox \$1.50 net Kettles.	1 14/10 1/2 inch and iarger # B 14/10 1/2 inch # B 15 c
Axes	Cast Iron, Steel Pointsper doz \$2'(0 dis 45&5 \$	Defiance4 in., \$350; 6 in., \$ K. F. M., 4%-inch Roll	4.00; 8 in., \$6.50 each net 5 50 each dis 15 %	Novelty Ice Breakers per doz \$6.50, net White's Sliding Head Picks per doz \$2.25, net	Manila
Colins'	Addition	Crown.	6 00 each dis 15 % each \$4.25, net	Wood Head Picks, Sargent's per doz \$1.00, net tron " per doz \$1.05, dis 60&10 \$1 tron " per doz \$1.05. dis 60&10 \$1	Sizal
Hurd's Rasor Blade	Cattle Leaders. Hotelyiss' Sons'net	Geneva Hand Fluter.		Ice Mallets, Pick in Headper doz \$1.75 net	
Mann's. Mann	Cattle Leasers. Hotchkiss Sons'. Humason, Beckley & Co.'s. Sargent's. dis 60&10 \$	Forzes, Empire" (W. P. Kellogg & Co.)	dla 30 %	Ice Axes, Small, Cast or Malleableper doz \$1.50 net Research	Rules Boxwood Ivory Chapin'u dis 60&10 \$ dis 50&10 \$ Stanley dis 50&10 \$ dis 50&10 \$
Upacraill's	Sargent's	Forks. Hay, Manure & Spading Plated A 1	dis 30 %	Rettles.	Stephens'
John Leverett's	Trace, 61/-10-2 by the cask, # pair, gold 50 @ 52c	Fry Pans. Burnished, P. S. & W., new list. # doz\$300 875 425 475 No 0 1 2 8	8-98 6-00 7-0u 8-00 9-00	Knives	Willis Thrail & Son. dis 50&10 € dis 50&10 € Sed 1 froms. From 4 to 10 lbs. From 4 to 10 lbs. From 4 to 10 lbs. From 5 to 10 lbs. From 5 to 10 lbs. From 5 to 10 lbs. From 6 to
M. H. Jones & Co	Trace. 7-10-2	No 0 1 2 8	4 5 6 7 8	Hav and Straw, "Wadsworth's"	Sad Iron. Nickei Stand attached
Axies. Common (Guy C. Hotchkiss, Field & Co.) \$ 5 4%c Solid Collar, Case Hardened, Chiled Box \$ 5 6c	tiaivanized Pump Chain # 10% @ 11c. Jack Chain, Iron	Marking Star	dis 35 %	Carriage (Jap'd 8) cents per gross)dis 60&10 %	Sand Paper.
Solid Collar, Case Hardeneg, Chilled Box # 28 80 Axle Grease.—Frazer's # 28 60.	Chalk. Brass. B gross, 57c net	Wire. " Smith's Patent	per doz \$18.00, dis 40 %		" 2,2% & 3. 4 15 " dis
B. lauces	White trayons 90c net white Crayons 90c net white Crayons 90c net	"Smith's l'avent Gimiets. Nail and Spike. "Bee" Gimiets. Double Cus, Shepardson's. "Hart well's. "ives" "Douglass'. Gine Pots.	per gross, \$12.00, dis 30 % dis 20 %	" Por Jap'd	" Assorted. 4 25 des " Star
#B. in uces	Chiseis. Socket Framing, Douglass, Extra	" " Hartwell's	din 40 %	" Por @ doz 7:50 Furniture, Plain	H. B. & M. Roman Flint dis 15&5 %
Bed Keys. P doz 84 00, dis 15 %	" Crossmail	Gine Pots. Tinned and Enameled		Melting, Hart'sdis 55&10 \$	Common # B 16 @ 18c. net Patent # B 24c. net Silver Lake, Russia Flax # 55c.
Bells	White Orayons	Tinned and Enameled. Family, Howe's "Eureks" L. F. & C.'s "Handy". Grind Stone Fixures Sargent's Patent Reading Hardware Co. J. F. Green & Isro. Hart Mig. Co.'s. Rick Bros.	dis 25 %	I.adie-s. dis 55&10 \$	Tatent
Hells.	" Croseman	Sargent's Patent	dis 65&10 %	Tubular	Sash Lucks. Ciark's, Nos. 1 and 2, \$1000 per gross
Savies dis 25 % Swiss dis 200:10 %	Merril dis 60&10 % Socket Corner dis 60&10 % Socket Corner dis 60 & 10 % dis 60	J. F. Green & bro	dis 60&5&10 %	Brady's Patent	Ferguson's dis 28% s Norwich dis 28 s Walker's die 20 s
"White Metal. dis 308-10 ; 18 ver chime dis 28 s	Socket Corner	Hammers. Emmet Hammer Co.'s Handled.	dis 25 %	"Monroe's Patent. per doz \$4'00 dis 20'8 Lanterras	Prguson's
Crank, Taylor's dis 25&10 % Brook % dis 25 & 10 %	" Spear & Jackson's	Hammers. Emmet Hammer Co.'s Handled. Sledge & Humason & Beckley Mrg. 6. Maydole s. Henry Hammonds' (Maydole's L Oheney's	Stone. W 2 40c.; dls 40 %	Lard Presses. Draw Cut, 14 Inch	Sash Weights,—Solid Eyes
** Cone's	Iron, Providence Tool Co.'s, Wrt. Irondis 25 %	Henry Hammonds' (Maydole's L Cheney's	not @ dia 5 #	Lemen Squeezers. Porcelain Lined	Stow or Perry \$ doz No. 1, \$15; No. 0, \$21—dia 25 \$ Draw Cut No. 4
Taylor's Bronze or Plated Levernet Japanned L. ve	Adjustable, Gray's	Yerks & Plumb	dis 20 %	Dunlap's Improvedper doz \$6.00 net *Ines. Usen Fish dis 20 \$	Saw Frames
Pull, Brook's dis 50 %	Cabinet, Sargent's	Magnetic Tack. Warner & Noble's. Hand Cuffs and Leg Iro Tower's Hand Cuffs, \$4 00 per pai Log Irons \$6 50 per pai Providence Tool Co.'s Hand Cuff Leg Irons Leg Irons	dis 20 %	United State Unit	Spear & Jackson's
" Western dis 25&10 % Gall dis 20&10 % Cow -Common Wrought dis 20&10 %	dis 40 \$	Tower's Hand Cuffs, \$4 00 per participants of the Leg Irons \$6 50 per participants of the Providence Tool Co.'s Hand Cuff	fu \$15 per doz / at- 10 g	Locks and Latches. Cabinet—Gaylord dis 25 \$	" Mill
Western	Superior	Bandles.	25 " } dis 10 %	Lecks and Latches dis 25 5	Hand, Panel, Bip, &C. dle 15 % H. W. Peace's Circuiars and Mulay. dla 25 % E. M. Boynton's Lightning, Coss Cuts. dis 20 % E. M. Boynton's Lightning, Coss Cuts. dis 20 % One-Stan, all lengths dis 40 &C will be a dis 20 % """ """ """ """ """ """ """ """ """
** Sargent's	Cockeves 13 11 13 14 15 15 16 16 17 17 18 18 18 18 18 18	Door or Thumb Latches- Nos. 0 1 2 Per dos \$180 100 118	8 4 1-35 1-50—dis 60&:10 \$	Barnes & Deitz, Flat Key	k. M. Boynton's Lightning, Closs Cuts
Nos. 0 1 15 2 3 4 5 6 Hog. \$1200 10000 000 800 600 500 250 250 500 dis 50 5	Coffee Milis. dis 15 20 %	Roggin's Latches Bronzed Iron Drop Latches	per doz \$1.00 @ 1.25 uet	Yale Lock Co., Flat Key	Buck Saws (Cross Bar)per doz \$8'\(\text{\text{Buck Saws (Cross Bar)per doz 6'\text{\text{\text{\text{\text{Buck Saws (Cross Bar)per doz 6'\text{\tex{\tex
" Yaw's Genuinedis 35 %	Board and Box. dis 20 % Increase Wilson's dis 20 %	Surface Chest	dis 65& 10& 10 % dis 60& 10& 10 %	Shepardson's dis 20 s American Lock Mfg. Co. dis 2834 s	Wheeler & Clemson Mfg. Co.'s Hand. dis 10&5 \$ Wheeler & Clemson Mfg. Co.'s Hand. dis 15 \$ "Cross-Cut. dis 5: \$ Livingston's Butcher and Kitchen. dis 15 \$
Bellews. blacksmiths', Common. List of Sept. 15dis 20 @ 25 & Extra and rittsburgh PatternList net	Board and Box.	Fer dos \$190 100 118 Roggia's Latches Bronzed Iron Drop Latches Wrought Chest Surface Chest Lifting Loofin Saw and Flane Boynton's Centennial X Cut. Lies Saw, Wrought Ir Hammer and Hatchet	dis 50& 10 & 60& 10 \$	Plate. new list dis 6022 % Trenton	Livingston's Britcher and Kuchen
Moulders' Gis 25 %	The Swift	Boynton's Patent X Cut	dis 10&5 %	Norwich	Haw beta.
Blind Adjusters.—Domestic v doz \$3—qis 20 5 Blind Fasteners. dis 20 5	American (Enterprise Mrg. Co.)	Hammer and Hatchet	each \$1 00 net	Russell & Erwin. dis 40&5 \$ Norwalk. dis 40&5 \$ Nashma. and 2 \$ for cash Mallory, Wheeler & Co.	Stilman's Genuine. \$\psi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Mackrell'sdis 30 s Van Sand's, No. 3000, \$14'00 ; No. 3706, \$10'50 net © dis 5 s Washburn's Patent	Peck Stow & Wilcox dis 25 % Miller's Patent dis 25 % 10 %	Hammer and Hatchet N. Carolina Handle Co	gross \$3 50—dis 20&10 \$ 5 25—dis 20&10 \$ 6 50—dis 20&10 \$	P. & F. Corbin. Parker & Whipple. Jacobus & Nimick Mfg. Co.	Leach's No. 0, \$8'00; No. 1, \$15'00 dia 15 g Nash's No. 1, \$8'50; No. 2, \$5'50 dia 20g. 0 g
Merriman's	Coopers' Tools. dis 15 @ 20 5 Chas. E. Little dis 20 6 25 5	Apple " " large ase'td large	" 6 00—dis 20&10 % " 7 50—dis 20&10 %	Jacobus & Nimick Mfg. Co. Mfg. Co. dis 40&5 \$ Padlocks, Russeil & Erwin. dis 40&5 \$ dis 40&5 \$ Mallory, Wheeler & Co. and 2 \$ for cash Wm. Wilcox & Co. as 35½ \$ American Lock Mfg. Co. ais 35½ \$	** Bemis & Call's
Bilind Staples. Boardman's Patent, % in. and larger	Corkscrews dis 25 %	Socket " large ass'td " Framing " " Anger "	** \$ 50—dis 20&10 \$ ** 7 00—dis 20&10 \$	Wm. Wilcox & Co)	Scales. Imitation
Hlocks. Offerential Pulley Blocks	Cast Steel	Auger large	" 6 50-dis 20&10 %	Romer's dia 15	Imitation
Tool Co.'s list. dis 30&10 \$ Burr's dis 10 \$ Scanley Bule and Level Co. dis 25&10 \$	Iron, steel points	Patent Auger, Ives'	per set \$1 25—dis 10 %	" Vulcan Hardware Co. dis 30 \$ " New York Lock Co. dis 30 \$ " J. H Mc Williams. dis 5 \$ 2.0 \$ Barnes & Deltz. dis 25 \$ " Miller's Patent. dis 40 \$ " Penn Lock Works. dis 20 \$ Malrera.—Elickory and Lignumvitse. dis 20 \$	Brown's dis 15 @ 20 % Brown's dis 256.5 % Fairbanks new list dis 15 @ 20 %
Belts. Cast Iron Sarrel, Shutter, &c	%, % in., \$1.80, \$2.00, \$2.40. dis 10 % Curing Tongs p doz \$6.50—dis 15 %	Hangers. Barn Door.	0 4150 % odia 65&10 %	Penn Lock Works	Howe's dis 1565 Chatillon's Grocers' dis 25 5
Sanley Istue and Level Sanley Istue Sanley Is	rincaling from	Hangers. Barn Door. "Anti-Friction" No.1,\$1:25; No. Noveity. Challenge Harneys Suaps. Henshaw's.	. a, \$1 50 \$ pr dis 40 \$ dis 40 \$ dis 40 \$ dis 40 \$.	Meas Cutters. Dixon's (P. S. & W.) Nos. 1 2 3 4 4 9 40x. \$14 00 \$17 00 \$19 00 \$30 00 dis 25 \$	Universal Family
" Shutter	Hotankias' & Kellogg's, from & Brass, old list dis 40 %	Harness Suaps.	dis 25&10 %	Miles Challenge Nos. 1 2 3 840 00—dis 90 % Perry's (P. S. & W.) Nos. 200 500 440 00—dis 90 %	No. 1 300 to 1200 lbs
4 6 1 Norway Iron dis 50.x 10 % !	Wood Tooth (Fuller Bros.)	Fitch's (Bristol)		Perry's (P. S. & W.)	Box, 1 Handleper dos \$6.40, dis 10 g
R. B. & W (old list) dia 65&5 4 Philadelphia dis 60&5 5	Chatters and the following the	Andrews'	dis 25 \$	Hales'	Pont dia 50 g 10 g
Union Nut Company, old list	Am. Pocket—Humason & Beckley Mfg. Codia 20&10 % Am. Miller Bro.'s Cutlery Co	Hatchets, -isainh Blood Shingling, Nos. 123	Qoz \$7 25 8 00 8 75	Draw CutNos. 5 6 7 1	Ship—Providence Tool Co
" R. B. & W	Naugatuce Cutiery Co	Lathing. " 128	doz 7 50 8 50 9 25 doz 7 50 8 00 8 50	American	Ship
Berua	Dipp: rs. per doz 7:50—dls 20 \$; by bbl. dls 38% \$ Britannia	Hunt's Shingling, Nos. 128. \$\footnote{\mathbb{R}} Claw, "128. \$\partial{\mathbb{P}} Lathing, "128. \$\partial{\mathbb{P}} Hurd's. \$\partial{\mathbb{P}} \$\mathbb{P}\$	doz \$7 25 8 00 8 75 doz 7 75 8 50 9 25 doz 7 50 8 25 9 00	Fach	Diaston's dis 45 5 Stanley Rule & Level Co., No. 1. dis 30410 5
Boring Machines. Upright. Angular.	Dog Cellars · dis 20 ≰ Leather · dis 20 ≰		doz \$8 00 8 56 9 00	Bush's	** No. 2
Douglass', no Augers. 5:50 7:50 dfs 40 g with Augers. 5:50 7:50 dfs 40 g	Brass dis 30 % Brass dis 25 % Door Springs Brass Bras	Lathing, " 128	doz 9 00 9 50 10 00 doz 8 00 8 50 9 00	Weed'sdis 15 5	Flat Head Iron. List Sept. 1, 18:5, R.&K. Mfg. Codis 50; Round Head Iron
" with Augers 7:50 10:00 dis Su \$	# Gray's # doz \$2'50 net " Gray's # doz \$2'50 net " Johnson's # doz \$2'60 net	Newark's Edge Tool Co.'s	doz \$6 50 7 00 7 50 doz 7 25 7 75 8 26	Nail Puliers- Taft's per doz \$24'00 net	Flat Head Brass "dis 40 s Round Head Brass "dis 30 s Brass and Eliver Capped, 'List March 1, "55,
Sellogg's, no Augers 9-25 4-00 net Seek's 9-25 4-00 net With Augers 5-00 6-00 net Seek's 10-00 cis 25 Phillips' with Augers 10-00 cis 25	Deer Springs. \$\\ \text{Pot oz \$2\cdot 0 net} \\ \text{Rod, forre; s.} \\ \text{Pot oz \$2\cdot 0 net} \\ \text{O insprings, Genn.} \\ \text{Nos. 1} \\ \text{Pot oz \$2\cdot 0 net} \\ \text{Coli Springs, Genn.} \\ \text{Nos. 1} \\ \text{Per dozen.} \\ \text{Sy50} \\ \text{\$2\cdot 0} \\ \text{\$700, dis 10 5} \\ \text{Challenge-} \\ \text{Nos. 5} \\ \text{7} \\ \text{6} \\ \text{105} \\ \tex	Yerkes & Plumb	doz 6 50 7 00 7 50	Nails See Trade Report	Lag or Common Coach, New List March 1, 78 dis 60 \$
Phillips', with Augers 10.00 dis 25 % Mortising Machines, \$20.00 each 10.00 dis 20 %	Challenge— Nov. 9 7 6 Japanned per dox 89:00 2:50 8:50 Coppered per dox 4:0 4:50 5:00 Colpered per dox 4:0 4:00 5:00 Galvanized per dox 5:50 4:00 4:00 Nickeled per dox 5:50 6:00 7:00 Nickeled per dox 5:50 8:10 8:70 Nickeled per dox 5:50 8:10 8:10 8:70 Nickeled per dox 5:50 8:10 8:10 8:70 Nickeled per dox 5:50 8:10 8:70 Nickeled per dox 6:50 8:70 Nickeled per dox 6:5	Claw, " 123	doz 750 800 850 doz 700 750 890	Nail Fullers. per doz \$24'00 net Naile. See Trade Report Naile. See Trade Report Nuts and Washers. Square and Hex. New List March 1, "58	Coach, Patent Gimlet Point, List Jan. 1, 1873. dis 35 t Bed. Jist net Serews of Sept. 1, 1875. dis 35 t Machine—Fiat Head, Iron, List Jan. 12, 1873. dis 25 t Machine—Fiat Head, Iron, List Jan. 12, 1873. dis 25 t Brass, dis 15 t Brass, dis 15 t Brass, dis 15 t Brass, dis 10 t Brass, dis 20 t Brass, dis 20 t Brass, dis 20 t Brass, dis 40 t Brass, dis
Bow Pins.	Galvanized. per qoz 550 400 410 Mickeled. per doz 550 600 700 Phiradelphia. 5 in., \$500 8 in., \$700 dis 15 5	Simmon's	\$7 50 8 00 8 50 9 00 9 00 9 50 10 00	Sheet Metal Screw, Zine, Brass and Copper dis 40 45 % Olmsted's	Round Head, Iron,
Sargent & Co.'sdis 50&10&10 \$	Prinadelphia	Claw, 123. 4 doz Lathing, 123. 4 doz Broad, 123. 4 doz 456. 5 doz 78. 6 doz	8 00 8 50 9 00 9 00 10 00 12 00	Malicable	English, Flat Head, Iron : Am. List dis 40&5 6 4 & 10 \$ Hirmingham Screw Co., Brass
Braces. Barber's Patent. dis 404:5 % O S Backus dis 404:10 %	Douglass, Extradis 60&10 \$	" 78₩ doz	20 00 22 00	Concave P n 18c net	" -Wood, Beach @ doz \$3.00 net
Barber An 406-10 S Q S. Backus	Crossman 8 No. 1	ElephantShingling, Nos. 123	doz \$8 00 8 50 9 00 doz 9 00 9 50 10 00	Pencils Faber's Carpenters'net	Hand
Spofford's Patent	Nonics Sing. Co	J. P. Verree & Co	40z \$7 00 8 50 9 00 das 5 5	Dixon's Lead. # gross \$6 00 net Lumber. # gross \$450 net	" Hickory dis 20e:10 x Hand. (1811) Sargent's dis 256:10 x " Humason. Becklev & Co."s dis 556:10 x Jack—Bell Bottom. dis 15 x Soythes Blood's German Steel, Grass. P doz \$10:00 Cast Wood of Color o
Brackets.—Shelf die 60&10 @ 65&10 \$ Bright Wire Goods die 65&10 \$	Biackamiths' each \$2 40 net Self-Feeding each \$7 50 net	Ciaw, " 123	doz 7 00 8 00 8 50 doz 7 00 7 50 8 00	Picture Natis and Knobs. Brass Head	Biood's German Steel, Grass P doz \$10 00
Buil Rings.—Union Nut Co	Breast P. S. & W	Underhil's. Shingling, Nos. 12 S. Claw, 12 S. Lathing, 12 S. F. Lathing, 12 S. F.	doz 7 25 8 00 8 75 doz 7 75 8 50 9 35	dis 50&10 \$ Richards' Patent.	** Cast **
	Wilson'sdis 10%	Tathing 14 100 30	doz 12 00 11 00 18 00 doz 88 00 8 50	Pinking froms per doz \$2 75—dis 85&10 % Planes and Plane Irons.	Blood's Excelsior and Granger doz il 00 dis \$1.50 Young America
Bradley's dis 20 g Beatty's dis 20 g	Ratchet, Merrill's	Shinging, Nos. 128	doz 9 00 9 50 10 00 doz 8 00 8 50 9 00	Hichards Patent	" Sliver Clipper
Beatley's dis 20 % 18 8 9 9 18 18 20 %		Hinges. Gate, Western.	P doz \$6.25—dis 604:10 <	Penance Adjustable	Scytne Snathe dis Science dis Si
845-25 \$39-75 \$34-25 \$38-75 \$49-25 \$49-50 \$54-90	Automatic Boring Toolseach \$2-75—dis 30 % Drail Chucks.	Hinges. Gate, Western	v doz 7:30—dis 6 & 10&10 %	Balley's Patent die 284 10 g Aburg Tool Co.'s die 25 5	Cast Irou New 1'st July 15 dis 40 \$ Seymour's Straight Trimmers dis 60 \$10 \$
Butta. dis 30 % Quant brass. dis 20 %	Danbury	Raised	dia 65&10 \$	Defiance	" Scissors
The second secon					

		THE IKON AG.	L .	31
Sheaves. Sliding Door, M. W. & Co. list	METALS.	16 Per cent	Zinc White, American No. 1 dry	Glass,
" Patent Roller	HONDUTY Bars, 1 to 1% cents per 1b., Sheet, Band,	MISCELLANEOUS. Common Plain Brass Pail Ears	" In oil	Single Thick. ZES. I. II. III. IV.
Shovels and Spades.	\$6 per ton Dallroad 20 cents non 100 lbs Hellen	Door Rail.		9
Ames	\$6 per ton. Railroad, 70 cents per 100 lbs. Boller and Plate.14 cents per lb. Pig tron—Americaw. Foundry No	High Brass Scrap, 16 cents. Low " 18 cents. Gilding, 20 cents.	# Bleached Winter. " 75x 11 x 18 to 14 x 2 Bperm, Crude. " obl. 1º65 15 x 24 to 15 x 24 to 15 x 24 to 10 x 3 # Winter unbleached. " 1º90 16 x 32 to 20 x 3	2
Diffining and the control of the con	Foundry No. 4	Turnings, Filings and Chips, half the price of Scrap. Orders for Goods on this list received on or after this date, will be filled at the rate herein stated, Terms—Net cash. No discount allowed. Interest to	Beal, Extra Refined 200 22 x 3 to 22 x 3 to 24 x 35 to 24 x 4 to 25 x 4 to 25 x 5 to 24 x 4 to 25 to 24 x 4 to 25 to 25 x 5 to 25	19750 18700 16700 16. 90750 19750 17700 10. 28700 20750 18700
Shove	Cothess	ANTIMONY 1644c. gold	Cotton Beed, Crude. 63c 30 x 4 6 to 30 x 5	26.50 23.50 22.00 2
Barrey & Barry's	Haw I won	LEAD DUTT: Pig \$2 per 100 ibs.; old Lead, 1% cent per ib.	Nearatoot, Winter	0. 31:50 29:00 26:00 0. 35:00 32:00 29:00 Double Thick.
N. Y. Cub. P pair \$2.75 B. & B. Cub. 350 All Clamp. 425 Rink. 800	Rails. American at works, currency	Bar dis 10 d		9
" Spring	Old Raile	Pipe. dis 10 % 956. Tra Lired Pipe. dis 10 % 1655. Sheet. dis 10 % 100. Shot als 10 % 100.	Dryer, Patent, Am'aass't cans, 10 %c.; kegs, 9c 11 x 14 to 12 x 10 %c. Regish	5
Peck & Snyder's— No. 1. Blued	Common Iron. % to 2 in. round and square \ # ton \$52 50	N.P. U	Flocks	32:00 30:00 26:00 8: 34:00 32:00 28:00 6: 32:00 34:00 38:00
Clipper Club Bluedper pair 3:50 dis25 9	Renned iron. % to 2 in round and square} 1 to 6 in. x % and 5-16	SOLDER	Glassic as Points, Zinc. gc 34 x 36 to 21 x 4 Gum, Copal. gc 24 x 42 to 23 x 4 Gum, Copal. gc 25 x 46 to 30 x 4 Gum, Copal. gc 26 x 4 Gum, Copal. gc 26 x 4 Gum, Copal. gc 26 x	40°00 36°00 32°00 30°00 36°00 36°00 44'50 40°00 36°00 46'50 42°00 38°00
Plated	Shafting Iron-2% to 4 in	at 7 cents perib, or under, 2½ cents; over 7 cents, and not above 11, 3 cents per 1b. over 11, 3½ cents per 1b. and 10 % ad val. Rallway Bars 1½ cents per 1b. Railway Bars, in part Steel, 1 cent per b. Provided, that	Sale	6 48'50 41'50 40'00 6 50'00 46'50 42'00 0 55'00 50'00 46'00
Square Frames, Round Cornered, by casedis 65d:10% Less than a casedis 65d:58% Spoke Shaves	Hoops-% to 2 in " 75 00 @ 130 00	Metal cemented cast or made from Iron by the Besse- mer or pneumatic process, of whatever form or de acription, shall be classed as	Putty in bladders	\$15 per box extra for every 5 inches. 10 @ 80&15 %
Defiance Metallic	Sheet Iron.	Teoi	Pamifee Stone, selected Lumps.	nited inches, will be charged in the 84 pracket. An additional 10 per cent. will all Glass more than 40 inches wide.
Wood.	American and English. American. English. Nos. 10 to 20	Homogeneous	PRATT	
Ives'No. 1, \$15:00; No. 2, \$12:00 \$\pi\$ dox, dis 33\f\(\)\text{\(\)}\text{10} \) Douglass'	ialvanizes, 14 to 30, prime, W B 856c : 2d quarter W B 756c	Sheet 14 @ 16c Saw Plate, mill and mulay 14 @ 16c Saw Plate, gang and X cut 13 @ 16c Saw Plate, gang and X cut 13 @ 30c circular as to size 18 @ 30c	Hardware & Iron Merchant	
Tined from dis 10 % By the case dis 20 % By the case dis 20 % Basting dis 10 % Bertaumia dis 10 % dis 10 % Britaumia dis 55 % Boardman's, new list. dis 55 %	" 21 to 24 " " 9½C " " 8½C " 25 to 25 " 10 C " " 9 C " 27 " " 10½C " " 9½C " 28 " " 11½C " " 10½C		:Manufacturers of the Superior I	Brand,
Boardman's, new list.	" 28 " 11%C " " 10%C "	Tool.	BUFFALO FORGED HO	RSE NAILS.
German Silver	One piece Corrugated Sheet Iron Elbows.	Hammer	These Nails are superior, being made with new and improved machine best brands of Norway Iros.	ry and actually hammered from the very
Tin (P. S. & W.)— Teas	BUSSIA IMON.	Round Machinery, Cast # B 10% @ 11% C Swaged, Cast		
Tenes	\$5.00 7 to 950 12:00 14:00 per doz. COPPER - Do v . Pig, Barand Ingot, 5c.; old copper,	Blister, 1st quality 145c		
Silps	deens & s. Malaufactured (including all artraces of which copper is a component of chief value) 45 % ad valorem. American Ingot	German Steel, Beat.		
Sand Stone				
Grindstones. Family, J. F. Green & Bro	Square too	" Square and Round "12%c" 12%c 12%c 11%c 12%c 11%c 12%c 12%c 11%c 11		
Stave Pelish	Circles, 84 inch diameter and over	per 100 lbs.		
Squitten. die 50 d. full cason die 50.6-10 d	Locomotive Fire Box Sheets32c. Sheathing Copper, over 12 oz. per sq. ft31c. "	Silesian, cash		
100 100	Bolt Copper	TIN-DUTY: Plates, Sneets, Tagger and Terne, 14c per lb.; Electro-galvanized Plates, 2 cents per 8; Manufactures of, not evum vatel, 85 per cent. ad val. Bacs, Blockand Pigs, free. Bancs, subject to dutyof 10 per cent.	5	
Disston's Try Squares No. 1	Sheathing Copper, tinned on one side, by the	Hanca	e	
Winterbottom's Try and Mitre. dis 30&10 % Tacks, Hafr wis, & c.—List of January 1, 1976. Tacks, Hafr Weight, American dis 756. Full 1988 1988 1988	Tinning Sheets, ordinary sizes	TIN PLATES, CURRENCY PRICES. 1 C 10x14, Prime Charconi	8	V
Full dis 10 % dis 10 % dis 10 %	14 and 16 oz. and heavier	I X 10x14, 4 10·78 12x12, 4 11·25 14x30, 4 11·25	Orders solicited from the Trade.	9.
" Leather Head die 10d Copper # 16 de 15d Copper # 16 de 15d Copper # 16 de 15d Copper	foller Sizes. 7 in., 14x52. 8 in., 14x6. 9 in., 14x60 14 and 16 oz. and heavier 39c. By the case, 39c. ₽ n. (And all sizes not over 20 inches wide.) 30x60 4 and 18 oz. and heavier	D C 12½x17 4 8·00 D X 12½x17 4 10·25 For each additional X add. 2⋅25	G. B. WALBRIDGE & CO., New Y	
4-8ths and longer, 9c.; 3½-8ths, 9½c. 5 b, dis 10 % Trunk, Clout and Finishing Nails— 4	12 08 44c. "	COERTIN PLATE. Best. 36 Quality. Ordinary. I C 10x14. \$8:00 7.75 7:25 46 8:00 I C 12x12. 8:50 8:2 7:75 46 8:00	"The Celebr	ated Francis Axe."
Double Pointed Tacksdis 33 1/2 10 %	Brown & Sharp's Gauge the Standard except for Fine Wire. BRASS MANUFACTURERS' PRICE LIST.	I C 14x20 8-75 8-25 7-25 @ 1-75	BEST AX	E IN THE WORLD.
Columno and Ring dis 20&10 q	October 27th, 1875. Net cash prices for Roll and Sheet Brass, Wire, &c., for quantities of 130 pounds and over at one time. For	I C 14x20 48*00 7:50 @ 7:15 7:00 @ 7:25 1 X 14x20 10*25 1 C 20x24 16:50 15:51 @ 16:30 23:550		Extra English Steel, HIGH
Eddy's dis 20 % Tea Trays. American Tea Tray Co. dis 15 %	less than 100 pounds, three cents additional. HIBUR BLASS All Nos. to No. 28, and widths 14 in. and under	I C 20x201 22:00 I C 14x20 M. F. Brand	Send for sample box	x before ordering and get prices.
Thermometers.	20 in., inclusive	ZINC. — DUTY: Pig or Block, \$1 50 per 100 lbs. Sheet		ETS, PICKS, &c.
Toe Calles	clusive. All Brass thinner than No. 38 is Platers' Brass. at45c. Sheets 24x48 in. and all sheets cut to particular sizes and lengths	Paper Stock, Old Metals, & c	G. B. WALBRIDG	F & CO
Ali Iron	" Win. and over	Canvas linen	U. D. WALDRIDG	L & UU.,
P. S. & W	over 14 " 90, "40c	White itnen rars. No.	99 Chambers Street,	lew York,
Hotekhissold list dis 30 %; new list dis 10 % Blake's Patent	LOW BRASS.	No. 9	OFFER FOR SALE THE FOLL	OWING
	Platers' or Gold Metal Sawed	Gunny bagging	MACHINI	FDV
Bound, Wire.	Metal, in width 2 in. to 16 in. to No. 30, inclusive, 1c. per m. advance.	Book stock. 4 @ 4% Waste paper and scraps 1 @ 1% Rope cuttings. 1% @ 3 Kentucky Baie rope. 4 @ 4%	MACHIN	
Treweis. Lothrop's Brick and Plastering. Disator's Brick and Plastering. dis 15 5 Peace's Plastering. dis 20 9	m. advance. Metal, in width 1 in. to 1/4 thinner than No. 30, 3c. per m.	Oakum junk, No. 1	In Good Order.	
Rose's Brick	Motal in width 1/ in to 1/ thinner than No 90 50 per 8	Carred Shaking	2 Large Milling Machines,	
Triers. Butter and Cheesedis 25 % Ventilators (Window). Nickel and Giltper dozen \$16:00 @ 18:00	advance. Metal, ¼ in. in width and less, i0c. per lb. advance	Hard White Shavings, No. 1	 Mason's Milling Machine, Brainard Milling Machine, 	
Vises. Solid Box, Trenton40 to 160 lbs., 16c.; 160 and over, 20c "Wison's30 to 160 lbs., 15c dt 25 %	4 per cent., 12 in., to No. 26. \$0.20 \$0.80 \$0.80 \$10 " " " " " " " " " " " " " " " " " " "	White Shavings, No. 2. 55/6 (Mixed Shavings, part white 4 4 4/2 (Imperfections, No. 2, best folded sheets 5 1, Heavy Stock 4/2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1 Gould Milling Machine, A Large Assortment of Standard Mill Cut	tters,
" Peter Wrights 160 and over, 22c \ d1 25 5 160 and over,	15 " " " 100 1.35 18 " " 110 1.50 20 " " 120	* No. 2, light	1 Gould Shaper, 1 Putnam Planer, 5 feet by 26 inches,	
** Wilson's	more than 16 bs., \$2 per b., net.	Pure Manilas and Hardwares 2% Sogus Manilas and Hardwares 1 6 1% Commons 1 6 Sinders' Board Cuttings 1% 6	1 Wood & Light Lathe, 5 feet Bed, 14 in 1 Blaisdell Lathe, 8 feet Bed, 20 inch Sw	
Merrill'sdis 15 %	All German Silver thinner than No. 36 is Platers', at	15	1 Upright Drill,	
Buttalo dis 25	in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap.	Copper	1 Tapping Machine, 1 Justice Dead Storke Upright Hammer,	
	High Brass. Low Brass. Cop'r. Nos. 0 to 30	14 16 17 18 19 19 19 19 19 19 19	1 Combined Shear and Punch, 1 Wrench Broaching Machine.	
Jacob's Pat. Self-Oiling R. R. and Canal	Nos. 24 and 25	ewter, No. 1	Prices etc. given on application.	
	of Round Wire.	fachinery fron	"CHAMPION" IM	PROVED
" 19 @ 26 dla 50 @ 55 \$ \$ " " 76 @ 56 dla 50 @ 65 \$ \$ " " " 76 @ 56 dla 55 @ 60 \$ " " 0 @ 18 dla 40 @ 45 \$ Galvanized, Nos. " to 9	PINE WISE BY THE OLD ENGLISH FINE WIPE GATOR N	ight Ironper ton \$15-00 tove plateper ton \$11-00 urnt Ironper ton \$11-00		
Gaivanized, Nos. 10 to 18 market list dis 15 (c 2) %		Paints, Oils, etc.	lce Cream Fre	ezer.
Tinned Broom Wire. dis 85 6 40 5 Gaivanized Telegraph, Nos. 8 and 9 8 5 6 80 5 'alvanized Telegraph, Nos. 10 and 1 8 b icc	No. 39.	Pututs.		CHEAPEST, but
Tinned	No. 31. 0.722 0.56 0.66 E No. 32. 0.55 0.00 0.64 0.81 No. 32. 0.60 0.64 0.81 No. 33. 0.60 0.73 1.03 E No. 55. 0.60 0.73 1.03 E No. 55. 0.70 0.73 1.03 E	Sect		the BEST.
Stane' Steel Wire. \$7 00 to £ gold Judd's Picture Wire. dis 50 % Clothes Line Wire. per coil 60c, net	No. 36	lne, Prussian, fair to best		
Wreaches. American Adjustable	Ten cents per pound extra for Spooling.	rown, Spanish. 154c Van Dyke. 9c Van Dyke. 9c S12 00		LES—FOURTEEN SIZES.
Collins & Co. s	* above 3 in 50 G No. 21, 22, 33, two cents advance on List for each Number.	rown, spanian	No. 19	RED FREEZERS.
(Malleable) dis 65x10 g Diamond Hardware Co. dis 40 g Lindsay's Patent dis 25 g	Nos. 24, 25, 26, four cents advance on List for each Number. Number. Other inch.	iperal Painta	No. 21	3 to 4 to 6
	Fig. 5, 10c	Boral Paints	No. 23. No. 24. No. 25.	10 4 10 4 12 4
The state of the s	Prices.	enna American, Raw	AU. 21	HEEL FREEZERS.
Providence, with Cog Wheels			No. 28	
Eureka, without " 60 00 58 00 Novelty " 60 00 58 00	vance on List. Add to 2 cents % cent for each additional cutting under two feet. All Mandrel Drawn Tubes under % in., 25 cents per	" in oil. 16 @ 21c " Raw. 3% @ 714c " in oil. 16 @ 22c	FRA	ME FREEZERS.
Reliance, with " 60 00 58 00 67 00	All Mandrel Drawn Tubes under % in., 25 cents per pound advance. ZING TUBING.	English	No. 34	LEX FREEZERS.
Reliance with 09 00 67 00	Fancy. 31 W cotch and Extra Patterns. 34 W GERMAN SILVER TUBING. W	a.te Lead, Americas, pure dry	No. 32	Two 20 quarts
Stampad & St.	OFRMAN SILVER TUBING.	How Oches French	SOLE MANUE AUTHORISE	
Stamped Tis Ware. Common Stamped Ware. Stamped Deep and Retined Ware. Japanned Tis Ware. dis 25 2 Japanned Tis Ware. dis 25 5 Japanned Tis Ware. dis 25 5 Japanned Tis Ware. dis 25 5	4 Per cent. 95 W 106 95 9 110 25 Y	" in oil. 15 6 22c mber, Burnt 1 5 6 25c mber, Burnt 1 5 6 5c in oil. 1 5 6 25c in oil. 1	SIDNEY SHEPARD & CO., I	Buffalo, N. Y.

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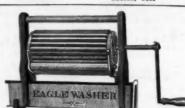
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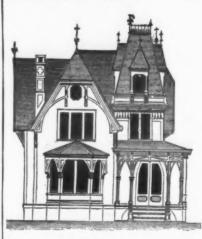
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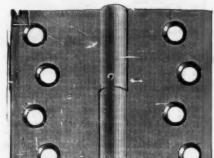
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A SI G	Augers—Snell Mfg. Co	١
1	Phœnix	
A K	Brads. Cut	1
8 8	Leather, new list, oak tanned	-
A 20 M	Can Openers—Sprague's	
* 2 2 2	Reported by Mesers. Sidney Shepard & Co. I be bruary 19, 1876. Angers—Snell Mfg. Co. Angers—Snell Mfg. Co. Bile, Argar—Snell Mfg. Co. Bile, Argar—Snell Mfg. Co. Bile, Cow—I saw & Genuine Bells, Cow—I saw & Genuine Boards—Stove. Brooks* Pas. dis 59 4 mos.; 396-55 50 dys Betting—Bubber Bells, Cow—I saw & Genuine Bells, Cow — saw & Genuine Bells, Cow — saw & Genuine Bells, Cow — sa	1
20.00	Corner Socket Chiseis	
K K	Cutters—Meat, "Hales" \$5 % Egg Beaters—" Peerless" Der doz systi	
6	Elbows—Corrugated per doz 5 00 Adjustable discontinuo	
%	Fluters—Geneva Hand	
g C	Hammers—Henry W. Kip's	
d	Shepard's and Standard	
D S	Fancy and Helmet	
***	Copper, "Hand Made"	
444	Fancy and Helimet. dis 15 % and Irons. dis 16 % and Irons. dis 16 % Kettles—Brees. 93 % COpper, "Hand Made" \$6 6.6 90c. Knives. Drawing—Oval No. 1 dis 50k10 % Razor Blade dis 50k10 % Razor Blade No. 1 dis 50k10 % Tuguiar. 9 dos \$45 00 \$10 50 \$18 75 dis 10 5	
S N	Tuouiar. # doz \$35 00 \$10 50 \$18 75 dis 10 5	П
ñ	with Guards	
io s	Machines—Apple Paring, "Keystone". 11:50 Machines—Boring, Snell s	
N KKK	Machines—Appie Paring, "Keystone" 775 ¥ dox Machines—Boring, Snell s. dis 20 % Milss. Conce—Box and Site, common dis 20 % Box Union and Eagle dis 25 % "American dis 25 % "American dis 25 %	
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T	HE IRON AGE
1	WAGON HARDWARE.
N N	Wagon Box Strap Bolts— 10 in, long by 7-16 at Scraw End. # set of 8 holts. 45c
5	10 " 9-16 " " 8 " 650
N N	12 9-16 1 8 0 1 70c
8	10 ** % ** ** 8 ** . 80c
8	14 " % " " 8 " 90e
K	18 " % " 8 " 1 10 20 " % " " 8 " 1 20
00	5c set for each additional inch over 14 in All lengths made.
90	In ordering Box Strap Bolts please give diameter at
8	Wagon Box Rods, narrow track, each. 15c wide track, each. 17c Single Tree Irons, % act of four pieces. 9cc Wrought Iron Boltze Plates 24 in wide Nacc
4 25	Single Tree Irons, # set of four pieces
N N	8 44 44500
5	4 11 8½ 11 11
€ 60	Wagon Brake Ratchets, each
3 18	Wrought Hammer Straps, heavy pattern, each
14	"Ruh Irons, each. 9 c Stay Chain Hooks, each. 554c Double and Single Tree Clips, figure 1, each. 8 c " " 2, each. 9 c " " 5, each. 11 c
14	Double and Single Free Clips, ngure I, each 8 c 2, each 9 c 3 c 2, each 9 c
1	
N. N.	Pole Capa, each
3	Single Tree Hooks, Nos. 1 and 2
18	Brake Ratchets. Hammer Straps. Rub Irons, Stay Chain Hooks, Clevis and Pin, Clips. Single Tree Hooks, and
3,6	Pole Caps, in lots of 50 setsdis 15 % Wagon Box Staples, 1% to 2% in, to clinch, \$ 1000 \$11 00 net
	Neck Yoke Eyes, each. 150 net
	With % rings, each
	Axie Cips, Round Part %, Flat Part 14, each. Sc Wagon Clevels, ncluding Pin, complete, each 10c. Pole Caps, each 10c. Plate, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks, Cleves and Pin, Clips, Single Tree Hooks, and Pole Caps, in lots of Suects 10c. Plate 1000 *11 00 net Wagon Box Stanles, 15 to 2½ in. to clinch *1000 *10 net Wagon Box Stanles, 15 to 2½ in. to clinch *1000 *7 50 net Necs 1 oke Eyes, each 4%c net King Bolts, ½, 1 with % rings, each 4%c net King Bolts, ½, 1 with % rings, each *% net King Bolts, ½, 1 with % rings, each % net ½c net Wagon Bliveis, ex. larged 54 in. diam % net 4½c net wagon Bliveis, ex. larged 54 in. diam 8 %c net Wagon Bliveis, 3-8 in. diam. all lengths, 8 %c net Wagon Bliveits, 3-8 in. diam. all lengths, 9%c net
50	King Bolts, %, 1, 1%, and 1% in diam. Why magn livets, ex. large, flat, oval and steeple head, % in diam, all lengths. Wagn livets, 3-is in, diam, all lengths. Wagn livets, 3-is in, diam, all lengths. Wagn livets, 3-is in, lam, all lengths.
15	& Nalls, in 5 b paper boxes '1 ic extra
18	% to I inch long
ys ys	Wagon Rivets and Nails, in less lots than one key each size.
18	Double Tree Plates "Sc net
25	
5 4 57e	Nock Yoke Plates. "10%c net Tongue Cap Iron, 1%, 2 & 2% in. wide, same price # b as Band Iron.
0c	
0%	net. 4 in., 11/4c, net Above price: are free on board cars in Pittsburgh. Subject to change of market, without notice.
0 % % C	Subject to coming of manact, wanted notice,
5%	DETROIT.
00	(Reported by Messis, Jmoett & Root,)
20	March 4, 1876. Tin Plate.—Best Charcost! Pig Tiu.—
00°5	Tin Plate.—Best Charcosi - Pig Tin.— IC. 10x14
2 %	IC. 12x12 9 75 Bright Wire.
05	1X. 12x12
5%	1X.14x20
5 % 560 450	XXX. 18x29 15 25 Copper Bottoms 8ic XXX. 18x29 16 75 Planished Copper 7: XXXX. 18x29 10 25 Sheathing, 18x48 41c DO: 100 Plate 87 Boiler Size, No. 7, 42c DX 11 25 9 18 Size, No. 8 42c DX 18 12 5 9 4 18 No. 8 42c
Oc.	DO. 100 Plate 8 75 Boiler Size, No. 7 42c DX 11 25 No. 8 42c
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05	DXXXX 100 Plate 18 75 No. 18 Am. Com 4 (0 IX, 14x14
0 %	13" 10m14 337 11 00 1 Wo 9" Am Come 4 00
sol	Reofing Tin. Best Char. W. D. Wood's Co. Select W. D. Wood's Co. Select I. C. Terne, 14x20. \$ 275 IBON. IBON. 14x20. 11 251 Nos. 15 to 20 Smooth \$5 to 1C. Terne, 20x28. 16 20 21 to 24. 5 20 10 21 to 24. 5 20 21 to 24
0 %	1X. "14x20. 11 25 Nos. 15 to 20 Smooth \$5 00 1C, Terne, 30x28 18 50 21 to 24 5 20 1X 20x28 48 50 25 & 25 & 25 5 40
5%	Cake Tin- " 21 to 21 Char'l., 6 70
0 %	IC, 10x14 Coke \$ 9.00
01%	1C, 14x20, " 10 00 Genuine
10 22c	No. 2 15c j
5%	N Y MALLET and HANDLE WORKS
5 % 10 16c	Keep constantly on hand
56c 10c	Calkers', Carpenters', Stone Cutters', Tin, Copper and Boller Makers'
0 %	MALLETS.
0 %	WALLE IS.
25	
32 FB	
0%	Hawsing Beetles,
0 % 5 %	Hawsing and Calking Irons; also all kinds or
20	Handles, Sledge, Chisel
0 % 5 % 5 %	Also, all kinds of Wood Turning, File Handles, Cotton Hook Handles, Drug- gists' Boxes., All work turned ont by the Waymoth Improved Patent Varlety Wood Turning Lathes.
00	gists' Boxes,. All work turned out by
5 5	
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0%	CHAS. E. LITTLE, 59 Fulton St., N. Y.
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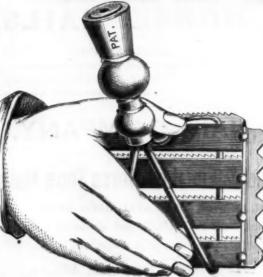
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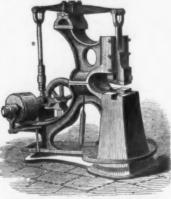
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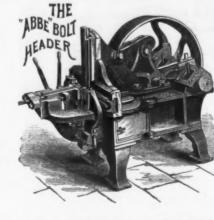
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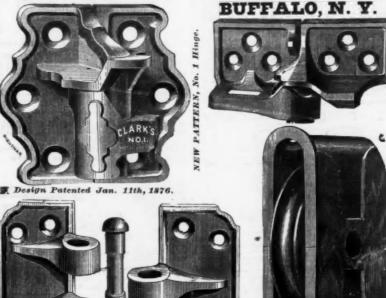
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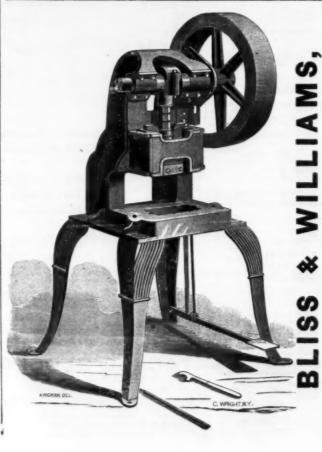
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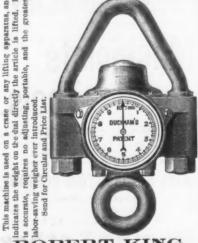
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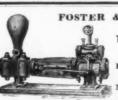
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Picks.—h. F. & Co., Solid Eyes. Bingle, \$100 113 135 200 2°25 1 Double, 1°88 2°30 3°65 4°40 1 naide tron Strapped Blocks, with Patent Refiger—5 15 15 2°30 1°65 2°30 2°75 Double, 2°30 3°0 3°81 4°65 5°00 2°75 Double, 2:30 300 SS 4:85 5:00

Plated ware.—Rogers broe.

Plumb & Levels.—"Davis" Pat. Adjustable
No. 1, fron and Wood Center Levels.
No. 2, First Quality Levels.
No. 3, fron Pocket
No. 4, Level and Plumb Glasses
No. 5, fron Pocket Levels, per square and
straight edge.
No. 6, Improved fron Bench Flanes.
No. 6, Improved fron Bench Flanes.
No. 6, Improved fron Bench Flanes.

Packet Knives.—Conn. Cutlery Co.

Religious Propers (No No No No Rep. 200 April | No. 5, Improved Iron Bench Pianes. | dis 30& |
Pocket Knives.	Conn. Cuttery Co.	new net			
Rail Knaves.	Conn. Cuttery Co.	new net			
Rail Knaves.	Son Cuttery Co.	new net			
Rail Knaves.	Son Cuttery Co.	new net			
Rail Knaves.	Son Cuttery Co.	new net			
Rivets.	Sinck	Son Cuttery Co.	dis 5		
Carriage, oval head, Nos.	5, 6, 7, 8, dis 5				
Rubber Moldings.	13	13	14	16	16 & 9. 5
Rubber Moldings.	13	13	14	16	16 & 9. 5
Rubber Moldings.	Harmon's"	dis 10			
No. 2, for Windows.	per foot.				
No. 3, for Doors.	per foot.				
No. 3, for Doors.	per foot.				
Miller's Patent.	per foot.				
Sand Irons.	Bless & Brake.	per foot.			
Sand Irons.	Bless & Brake.	per foot.			
Sand Irons.	dis 15 & 5				
M. B. & D.	0.0	2, \$422; 2 to 3, \$4			
Saws.	Adden & Clemson's, same list as "Diston's"	dis. 15 & 5			
Diston's	dis. 15 & 5				
Cross Cut-	Star' X Cuts.	per ft. 3			
"Champion X Cut.	9				
"" " "Champion X Cut.	9				
"" " " " One Man X Cut.	cach, \$2				
Circular—Wheeler, Madden & Clemson's	dis. 5				
Screws.	Am. Screw Co., new list Sept.	18	19		
Screws.	Am. Screw Co., new list Sept.	18	19	Screws.—Am. Screw Co., new list Sept. 1st M. B. & D.....	

gton, Cooley & Co.— , Rakes, Forks, &c..... Boston Metal Market.

| 1. C. Char. 10x1s. | 650 | Bolt. | 31c | Char. Boof. IC. 14x4b. 7 00 | Sheathing | 31c | Char. Boof. IC. 14x4b. 7 00 | Sheathing | 31c | ST. LOUIS.

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1 uoz, \$7 7

Hudson's Rotary.

2 7

X ess.—Wm. Mann's, Red Warrior.

Wm. Mann's, W. Stewart's.

1 uoz, \$7 7

Hudson's Wolkewart's.

1 uoz, \$7 7

2 10 0

William Mann's, W. Stewart's.

1 uoz, \$7 7

2 10 0

William Mann's, W. Stewart's.

1 uoz, \$7 7

2 10 0

William Mann's, \$1 0

Hunt's.

2 1 uoz, \$7 7

2 1 uoz, \$7 7

2 1 uoz, \$7 7

3 1 uoz, \$7 7

4 1 uoz, \$7 | Boltania | Boltania

18	FilesBlack Diamond, Mill\$500 £ currency.
75	Files.—Black Diamond, Mill
50 8:	Forges.—Reystone Portable Forge Co. S. dis 12' g Forks and fices.— Auburn Mig. Co.'s Hav and Manure Forks dis 3. S Garden Seed Division Wheel Hoese Allen's Double William Wheel Hoese Allen's Double William Wheel Hoese Combined Drills now Wheel Hoese Gis 15 g Combined Drills Nos. 2 and 3. ois 15 g Combined Drills Nos. 2 and 3. dis 15 g Grinding Millis.—Challenge Feed Mills. dis 15 g Seagebeer's Nonparell Mills. dis 15 g Seagebeer's Nonparell Mills. unet list Hammers.—Masous Hammers. p B 50 c Smiths Hand. 20c Handles.—No. I Fork, Hoe and Kake dis 30 g No. 2 Fork, Hoe and Rake dis 30 g No. 2 Fork, Hoe and Rake dis 30 g No. 2 Fork Hoe and Rake dis 30 g No.
1 %	Garden Seed Drills and Wheel Hoes. Allen's Double Wheel Hoe. dis 15 %
60 40 %	" Planet Drill, Nos. 2 and 3
50	Sedgebeer's Nonparell Mills
80	Hammers.—Masons Hammers
15	No. 2 Fork, Hoe and Lake
et et	% and % inch iron
8	Dederick's Ratiroadnet list
et 00 00	Perpetual
00 % C	Horse hay Fork.—Nellis' Harpoon
ge	National ratent Pointed, extra finished
6 %0	Sandwich Lever
50	"Black Diamond"
5 %	" Mule 6 50
00	"Black Diamona" \$6.00 to the £ currency Horse - Ances Rhode Island (Perkin's Pattern) .
ln.	Doston Detting Co. s hupber medium Sizes, distracte >
in.	drartdis 40
191	W. I. Wood & Co.'s Chest Hatchets
	drart. Sunalt Stzes, Hy- drart. Mood & Co. 8 Saws new hist ne W. T. Wood & Co. 8 Saws new hist ne W. T. Wood & Co. 8 Chest Hatch tels new list ne Axes new list ne Loading Tongs new list ne Medium, Sinall and Family Tongs new list ne Chise.s, Hooks and Grapples new (st net
h.	" Chise.s, Hooks and Grapples new ist net
ch.	Mattocks and Grub Hoes.— Klein, Logan & Co.'s Mattocks # doz \$11 75 @ 18 50 Grub Hoes,
h.	oval eye "8.25 @ 9.75 Money Drawers." per doz \$83 00 net Natis. "Wheeling Kiverside Brand. \$3.93 rates Packing. "Hoeling Kiverside Brand. \$3.93 rates Packing. "Hoeling Co. 's Kubber, Pure. dis 25.65 % Bound and Square. dis 10&10 % Picks. "Klein, Logan & Co.'s Kali.
15	Nails.—Wheeling Riverside Brand
0%	" No. 2 Plain,
5%	Picks.—Klein, Logan & Co's Rait- road and Clay
0%	" Poli 11 6 @ 13 83
ist	" " Miners' Drift-
0%	Picks, -Kieir, Logan & Co's Roud and Squaredis 10&10 & 10 & 10 & 10 & 10 & 10 & 10 &
5%	Comma cast cast steel
5c l0c	Pulleys.—5 inch
ke Ke	Pumps. St. Louis, Farm, Patent Metal Linednew list dia 25 S
75	Rakes.—Paddock's Premium Sulky
5 %	" Hand Hav Rake
6 %	Nellis Patent
Mic.	Cast I on dis 10de 5 Sad J rops. — Monitor Brand, Silver Polished * B 44c
25 50c	Sash Weights. Standard Solid Eyes. & h 40 Saws. Curtle & Co. dis 10 5 Sewthers. Dunn Edge Tool Co. a
5%	Extra Indian Pond
19	Extra Indian Fond. 159 dts 39 % Premium 1959 dts 39 % Diamond Grit. 150 dts 39 % Diamond Grit. 150 dts 30 % Diamond Grit. 150 dts
50	Grain Scoops Patent Cor'd Straps H. M. M. & Co
1%	do. M. Kowland & Co., dis 30 and 75c do. O. Ames & Son, dis 17% s and 75c do. O. Ames & Son, dis 17% s and 75c do.
50	Steel Face Polisical
50 00 0 %	Sorghum Machinery - Bell Cane Mids dia 20 % Sorghum Machinery - Bell Cane Mids dis 15 % Scantlin's Seamless Evaporators.
UU	Seel Face Pollsko-1. \$\ \mathbb{P} \
Sc Sc	Thimble Skeins.—Whitewater'sdis 15 Vises.—Sond Box
18	Wilson Mfg. Co.'s. dis 15 - Wheelbarrows.—Champion from wheel; # doz \$35'00
00	Wrenches,—Coes' Genuine # doz. \$40 net
ke sec	Constitution West Wrename West Wrename West Wrename West
80	Iron Axle
5c	
18	St. Louis Metal Market.

St. Louis Metal Market.

(Corrected Weekly by Messre. R. Setteto & 'o.)

Trin Plate.

(, 10x14, Best Char. \$ 950 | 1X, 14x20. Rooting. ...\$11:5

X, 10x14, | 12:00 | 10, 20x28, | 1:00

(, 12x.2, | 10:04 | 1X, 20x28, | 25:5

X, 12x12, | 12:50 | 10, 10x14, Coke...9:0(@ 90

X, 14x2, | 10:00 | 10, 14x20, | 90

X, 14x2, | 13:00 | 10, 10x20, | 14:00

C, 14x20, Rooting... 9:00 | 10, 10x20, | 14:00

C, 14x20, Rooting... 9:00 | 10, 10x20, | 14:00

C, 14x20, Rooting... 9:00 | 10, 10x20, | 14:00 Solder. o. 1, Refined, in bars or plate.....

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Dearlers' or Spelter Solder.... Autimony. Babbit Metai-F. S. & Co.'s,...



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JANUARY 25th, 1876.

For dimensions of Governor, see Illustrated Price List.



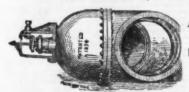
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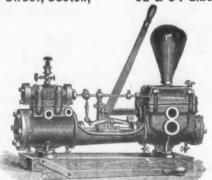
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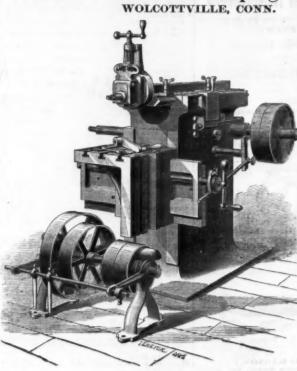


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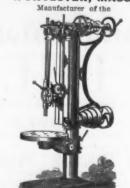
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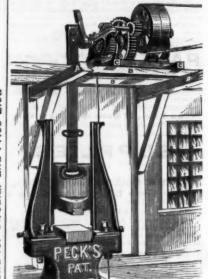


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B. W. PAYNE & SONS, Corning, N. Y.

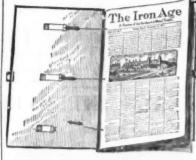
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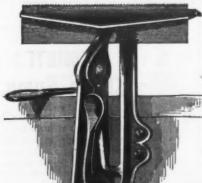
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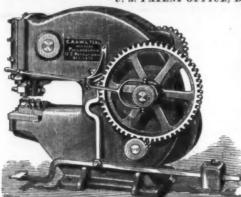
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